SPECIAL PROVISIONS
&
SUPPLEMENTAL SPECIFICATIONS

CSI-Inch/Pound

Project No: **SP-9999(751)**

Name: **Bridge Preservation I-15 Spaghetti Bowl**

BRIDGE PRESERVATION VARIOUS LOCATIONS

County: **SALT LAKE**

Bid Opening: **April 19, 2005**

Date

2005 - U.S. Standard Units (Inch-Pound Units) March 14, 2005

Table of Contents

SP-9999(751)

I. 2005 Standard Specifications

The State of Utah Standard Specifications for Road and Bridge Construction, U.S. Standard Units (Inch Pound Units), Edition of 2005 applies on this project as a static Specification Book as well as all other applicable specification changes.

Refer to Part XII (Special Provisions and Supplemental Specifications) for other project specific specifications.

II. List of Revised Standard Drawings

Change One

Revised February 24, 2005

AT 1	Legend Sheet	02/24/2005
AT 2	Ramp Meter Details	02/24/2005
AT 3	Ramp Meter Sign Panel	02/24/2005
AT 5	Ramp Meter Loop Installation	02/24/2005
AT 6	Conduit Details	02/24/2005
AT 7	Polymer-Concrete Junction Box Details	02/24/2005
AT 8	ATMS Cabinet	02/24/2005
AT 9	ATMS Cabinet Disconnect And Transformer Frame	02/24/2005
AT 10	CCTV Mounting Details	02/24/2005
AT 11	CCTV Pole Details	02/24/2005
AT 12	CCTV Pole Foundation For Dedicated CCTV Pole	02/24/2005
AT 13	Deleted	N/A
AT 14	Weigh In Motion Piezo Details	02/24/2005
AT 15	RWIS Site And Foundation Details	02/24/2005
AT 16	RWIS Tower Base And Service Pad Layout	02/24/2005
AT 17	Ground Rod Installation And Tower Grounding	02/24/2005
AT 18	TMS Detection Zone Layout	02/24/2005
BA 3	Deleted	N/A
BA 3A	Cast In Place Constant Slope Barrier	02/24/2005
BA 3B	Precast Concrete Constant Slope Transition Section For Crash Cushion And W-Beam Guardrail	02/24/2005
BA 4B	W-Beam Guardrail Transition	02/24/2005
BA 4C	W-Beam Guardrail Transition Curb Section	02/24/2005
CC 7	Deleted	N/A
CC 7A	Grading And Installation Details Crash Cushion Type F Quad Trend 350	02/24/2005
CC 7B	Reserved For Future Use	N/A
CC 8	Deleted	N/A
CC 8A	Grading And Installation Details Crash Cushion Type G	02/24/2005
CC 8B	Grading And Installation Details For “3R” Projects Crash Cushion Type G	02/24/2005
CC 9A	Grading And Installation Details Crash Cushion Type H	02/24/2005
CC 9B	Grading And Installation Details Crash Cushion Type H (Parabolic Flare)	02/24/2005
DD 4	Geometric Design for Freeways (Roadway)	02/24/2005
FG 3	Swing Gates Type I For Gates Less Than 17’	02/24/2005
ST 5	Painted Median And Auxiliary Lane Details	02/24/2005

III. Materials Minimum Sampling and Testing

Follow the requirements of the Current Materials Minimum Sampling and Testing Manual:

Materials Minimum Sampling and Testing Manual reference can be found from the UDOT Web Site at:
http://www.udot.utah.gov/index.php/m=c/tid=645

NOTICE TO CONTRACTORS

Sealed proposals will be received by the Utah Department of Transportation UDOT/DPS Building (4th Floor), 4501 South 2700 West, Salt Lake City, Utah. 84114-8220, until 2 o'clock p.m. Tuesday, April 19, 2005, and at that time the download process of bids from the USERTrust Vault to UDOT will begin, with the public opening of bids scheduled at 2:30 for BRIDGE PRESERVATION VARIOUS LOCATIONS of Bridge Preservation I-15 Spaghetti Bowl in SALT LAKE County, the same being identified as State Project No: SP-9999(751).

Federal Regulations:
Wage Rate Non-Applicable.

Project Location: 0.5 Miles of Route: 0015 from R.P. 297 to R.P. 313

The principal items of work are as follows (for all items of work see attachment):
Epoxy-Urethane Co-Polymer (Type 1)
Traffic Control
Maintenance of Traffic (MOT)

The project is to be completed: in 60 Calendar Days.

Other Requirements:
All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, http://www.udot.utah.gov/index.php/m=c/tid=319. To bid on UDOT projects, bidders must use UDOT's Electronic Bid System (EBS). The EBS software and EBS training schedules are also available on this website.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's website to register. Unregistered companies may obtain a **CD**, that contains the Specifications and Plans, from the main office, 4501 South 2700 West, Salt Lake City, (801) 965-4346, for a fee of $20.00, plus tax and mail charge, if applicable, none of which will be refunded.

Prequalification of bidders is required. Prior to submitting a bid, the bidder must have on file with the Utah Department of Transportation a completed and approved contractor's application for prequalification. Department processing time is 10 working days from receipt of properly executed documentation.

As required, a contractor's license must be obtained from the Utah Department of Commerce.

Each bidder must submit an electronic bid bond from an approved surety company using UDOT's Electronic Bid System (EBS); or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

If you need an accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4346. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4346.

Dated this 02nd day of April, 2005.

UTAH DEPARTMENT OF TRANSPORTATION
John R. Njord, Director

Revised Date:

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 4/19/2005
Region: REGION 2
Project Number: SP-9999(751)
County: SALT LAKE
Project Name: Bridge Preservation I-15 Spaghetti Bowl
Concept: BRIDGE PRESERVATION VARIOUS LOCATIONS
Funding: STATE
Bid Items Version#: 1

#	Item	Description	Quantity	Unit
10 - ROADWAY				
1	012850010	Mobilization	1	lump sum
2	013150010	Public Information Services	1	lump sum
3	015540005	Traffic Control	1	lump sum
4	01557000*	Maintenance of Traffic (MOT)	1	lump sum
5	02765006P	Pavement Marking Paint	1	lump sum
20 - STRUCTURES				
6	03371000*	Epoxy-Urethane Co-Polymer (Type 1)	355464	square foot

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

MEASUREMENT AND PAYMENT

The Department will measure and pay for each bid item as detailed in this section. Payment is contingent upon acceptance by the Department.

Items are listed by Specification and in tables as follows:

Item #	Bid item number	Bid Item Name	Unit of measurement and payment
Additional information goes here.			

1	**012850010**	**Mobilization**	**Lump sum**
	Payment	**Amount Paid**	**When Paid**
	First	The lesser of 25% of Mobilization or 2.5% of contract	With first estimate
	Second	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 5% of contract
	Third	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 10% of contract
	Fourth	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 20% of contract
	Final	Amount bid in excess of 10% of contract price.	Project Acceptance-Final

2	**013150010**	**Public Information Services**	**Lump Sum**
	Payment	**Amount Paid**	**When Paid**
	First	25% of bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate

3	**015540005**	**Traffic Control**	**Lump Sum**
	Payment	**Amount Paid**	**When Paid**
	First	25% of the bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate

4	**01557000***	**Maintenance of Traffic (MOT)**	**Lump Sum**

A. Partial Payments - Based on the percentage of the project completed, excluding the cost of MOT.
   1. Failure to comply with any of the requirements of this special provision will result in non-compliance.

B. Price Adjustments:
   1. The Department reduces payment if the MOT implemented is not in compliance with the approved MOT plan, as determined by the ENGINEER.
   2. The amount per day by which the CONTRACTOR's compensation will be reduced is calculated using the daily charge in the Schedule of Liquidated Damages in Table 1 of Section 00555M or the Contract lump sum bid price for MOT divided by the number of Contract days, whichever is greater.

C. Payment for change in scope: Negotiate a price adjustment for MOT if the ENGINEER orders a change in the scope of work which requires modification to the approved MOT Plan.

D. It is estimated that 8 VMS will be used for this project.

5	**02765006P**	**Pavement Marking Paint**	**Lump Sum**

In place, Payment:

A. The Department will not pay for removal of unauthorized, smeared, or damaged markings.

6	**03371000***	**Epoxy-Urethane Co-Polymer (Type 1)**	**Square feet**

VII. PDBS Project Summary Report and Detailed Stationing Summaries Report

Summary Report

Project: SP-9999(751) **Version: 1**

Bridge Preservation I-15 Spaghetti Bowl

Detail	Alt Group	Alt #	Description
10 - ROADWAY	0	0	

Item Number	Description	Qty	Unit
012850010	Mobilization	1	Lump
013150010	Public Information Services	1	Lump
015540005	Traffic Control	1	Lump
01557000*	Maintenance of Traffic (MOT)	1	Lump
02765006P	Pavement Marking Paint	1	Lump

Detail	Alt Group	Alt #	Description
20 - STRUCTURES	0	0	

Item Number	Description	Qty	Unit
03371000*	Epoxy-Urethane Co-Polymer (Type 1)	355,464	sq ft

Detailed Report

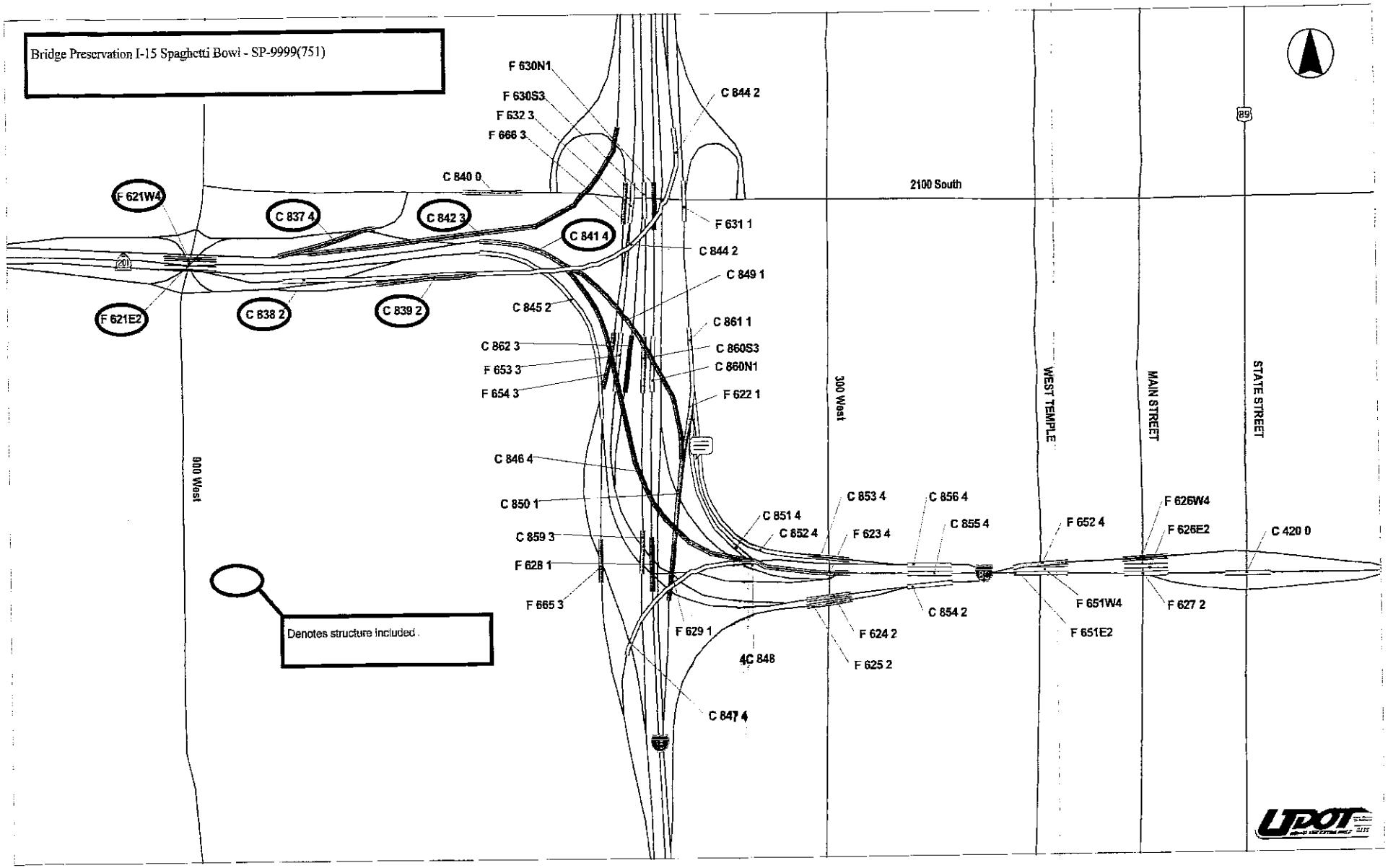
SP-9999(751) **Version: 1**

Bridge Preservation I-15 Spaghetti Bowl

20 - STRUCTURES **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
03371000*	**Epoxy-Urethane Co-Polymer (Type 1)**	355,464	sq ft

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
C-837					15,971.011	
C-838					41,081.237	
C-839					12,195.616	
C-841					62,336.972	
C-842					66,155.71	
C-844					104,669.6	
F-621E					26,393.306	
F-621W					26,660.594	
					355,464.046	

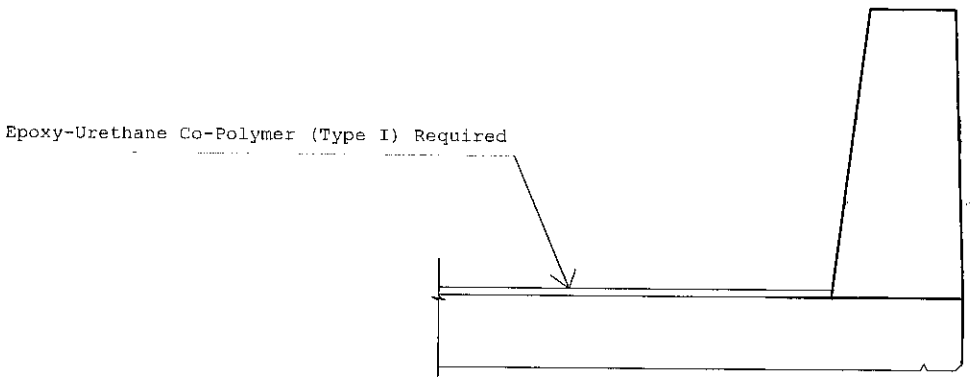

Bridge Preservation I-15 Spaghetti Bowl - SP-9999(751)
F 630N1
F 630S3
F 632 3
F 666 3
C 844 2
C 840 0
2100 South
F 621W4
C 837 4
C 842 3
C 841 4
F 631 1
C 844 2
C 849 1
C 845 2
F 621E2
C 838 2
C 839 2
C 861 1
C 862 3
C 860S3
F 653 3
C 860N1
F 654 3
F 622 1
300 West
WEST TEMPLE
MAIN STREET
STATE STREET
900 West
C 846 4
C 850 1
C 853 4
C 856 4
F 626W4
C 851 4
C 855 4
F 652 4
C 852 4
F 623 4
F 626E2
C 420 0
C 859 3
F 628 1
F 665 3
C 854 2
F 651W4
F 627 2
F 629 1
F 624 2
F 651E2
4C 848
F 625 2
C 847 4
Denotes structure included.

STRUCTURES:
F-621W, C-837(On Ramp), C-842

F-621E, C-838, C-839(On Ramp), C-844,

and C-841

Polymer Overlay

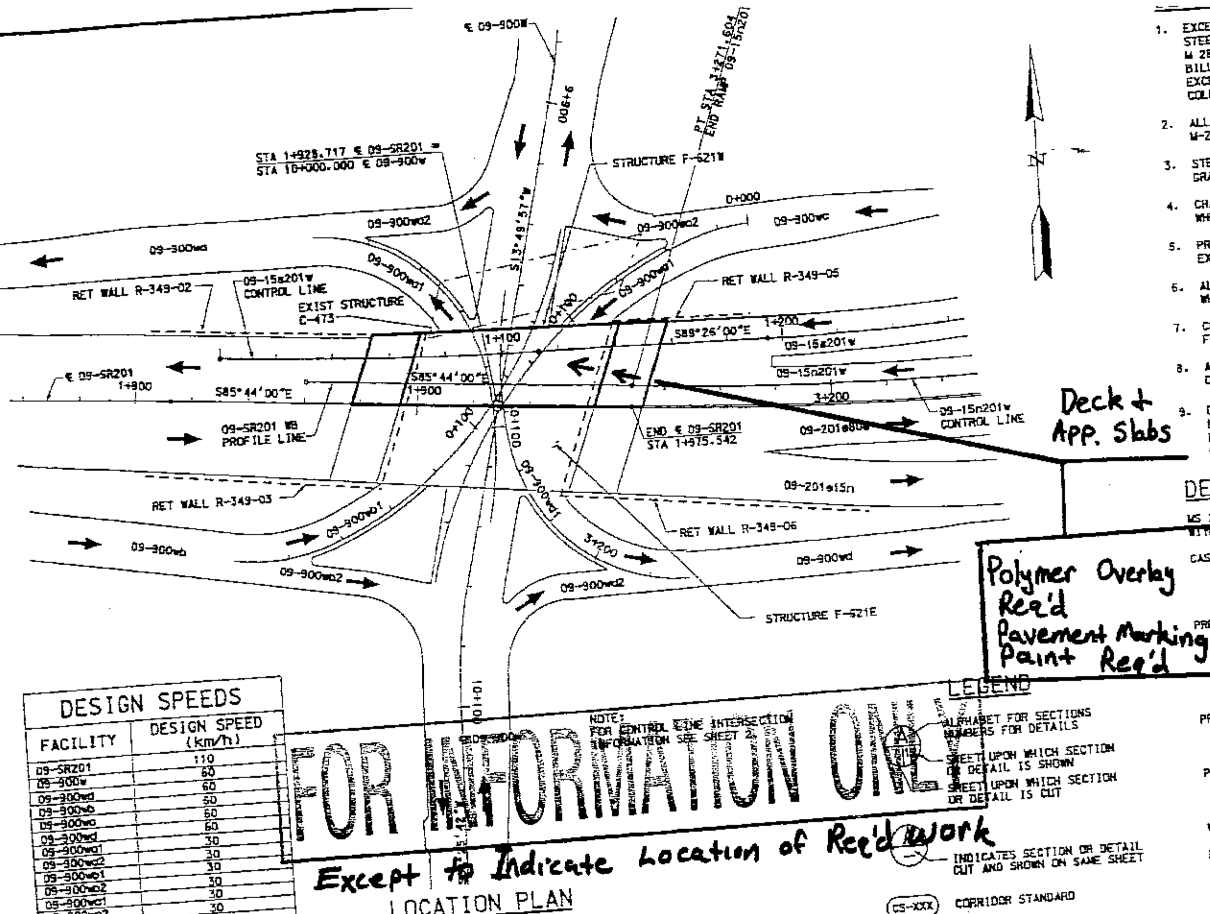


Note:

1. Apply polymer overlay to the entire bridge deck and approach slabs surface.

2. Protect and do not cover the existing expansion joints, joints at the end of approach slabs, deck and approach slab drains with polymer overlay.

3. Saw cut and reseal any joints if covered by polymer overlay at contractor's own expense throughout the construction.



LOCATION PLAN

(CS-XXX) CORRIDOR STANDARD

UNDERDECK LIGHT

DESIGN SPEEDS	
FACILITY	DESIGN SPEED (km/h)
09-SR201	110
09-900w	60
09-900wd	60
09-900wb	50
09-900wc	60
09-900wd	60
09-900wa1	30
09-900wa2	30
09-900wb1	30
09-900wb2	30
09-900wc1	30
09-900wc2	30
09-900wd1	30
09-900wd2	30

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M-203M GRADE 270 EXCEPT WHERE NOTED OTHERWISE.
3. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252. GRADE 2, Fy = 359 MPa, MINIMUM.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
5. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
6. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
7. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
8. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.
9. DECK SLAB IS DESIGNED TO ACT COMPOSITELY WITH THE GIRDER FOR LOADS INTRODUCED WITH AND SUBSEQUENT TO GIRDER POST-TENSIONING. SHORING SYSTEM IS NESESSARY TO SUPPORT GIRDERS DURING CONSTRUCTION AND REPLACEMENT OF DECK SLAB.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS, UNLESS NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; f'c (DECK & SPLICE DIAPHRAGM) = 35 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

PRESTRESSED CONCRETE: f'c = 52 MPa; f'ci = SEE GIRDER SCHEDULES; fy (NONPRESTRESSED) = 420 MPa; n = 6; DESIGN METHOD: ALLOWABLE STRESS DESIGN WITH MS 18 (HS 20-44), AND LOAD FACTOR DESIGN WITH MS 22.5 (HS 25-44).

PRESTRESSING STRANDS: 15.24 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND: AASHTO M-203M; fpu = 1860 MPa

POST TENSIONING STRANDS: 12.70 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND: AASHTO M-203M; fpu = 1860 MPa

WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: SEE DESIGN SPEED TABLE THIS SHEET

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

CORRIDOR STANDARDS

CS-54	COPING DETAILS AT BRIDGES	(06/18/98)
CS-100	UNDERDECK SIGNAL HEAD	(09/25/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-215	PRECAST PANEL DECK FORM 1	(09/24/98)
CS-216	PRECAST PANEL DECK FORM 2	(09/03/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-225	APPROACH SLAB - TYPE C	(11/25/98)
CS-227	APPROACH SLAB DETS - C & D	(05/15/98)
CS-228	APPROACH DRAINAGE	(08/04/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-240	CONC MEDIAN PARAPET RC DECK	(07/22/98)
CS-241	ELECTRICAL DETAILS	(03/11/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-245	TRANSITION ELEMENTS	(11/16/98)
CS-246	TRANSITION DETAILS 1	(06/03/98)
CS-247	TRANSITION DETAILS 2	(06/03/98)
CS-248	APPROACH SLAB DRAIN TYPE III	(03/11/98)
CS-252	MEDIAN PARAPET AT APPR - 1	(08/11/98)
CS-253	MEDIAN PARAPET AT APPR - 3	(08/11/98)
CS-261	COLOR APPLICATION - 1	(11/16/98)
	COLOR APPLICATION - 2	(11/16/98)

INDEX OF SHEETS

QUANTITIES			
ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	148	M³	
SUPERSTRUCTURE CONCRETE	683	M³	
STRUCTURAL STEEL	—	KG	
POST-TENSIONING FOR DECK SLAB	—	KG	
REINFORCING STEEL (EPOXY COATED)	57 618	KG	
DRIVEN PILES 324 mm DIAMETER	—	LIN M	
DRIVEN PILES 406 mm DIAMETER	2339	LIN M	
PRESTRESSED GIRDER SERIES	603	LIN M	
POST-TENSIONING FOR GIRDER	59,131	KG	

WASATCH CONSTRUCTORS
FEB 1 1 1999
RELEASED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER 1-29-99 97-35-893-2202 JOHN G. WILSON STATE OF UTAH

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	08/31/98	INITIAL RELEASE
Δ	01/15/99	MODIFIED CS LIST, OMITTED SHEET 27
		PER NOC - 10016

UTAH DEPARTMENT OF TRANSPORTATION

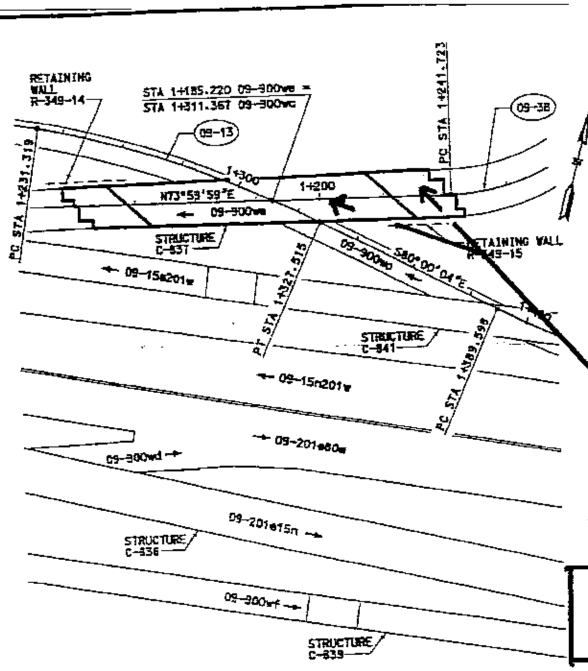
SVERDRUP/DE LEUW

TRAC NO. 2720500

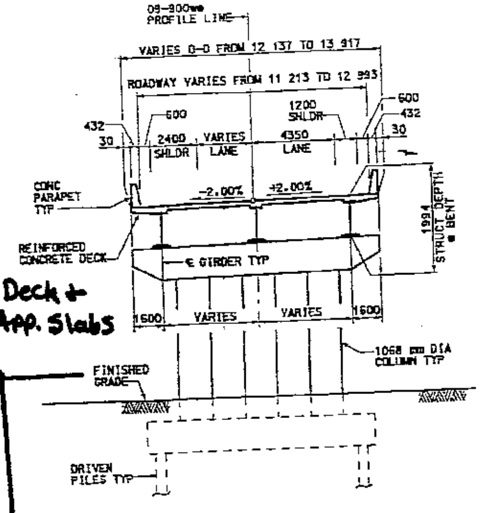
APPROVAL: J. G. WILSON, PROJECT DESIGN ENGINEER, 01/98; APPROVED: D. E. MAUGER, PROJECT MANAGER, 01/98; DESIGN: FAA 01/98; CHECK: RHR 01/98; DRAWN: TDK 09/97; CHECK: EAS 01/98; QUANT: DAG 07/98; CHECK: FAA 01/98

I-15 CORRIDOR RECONSTRUCTION
SR-201 WB OVER 900 WEST
SITUATION & LAYOUT 1
PROJECT NUMBER #SP-15-7(135)296
SALT LAKE COUNTY
DWG. NO. F-621W
SHT. 1 OF 27
REF. 09 STR F621WSL01

Except to Indicate Location of Req'd work



LOCATION PLAN



SECTION THROUGH STRUCTURE

Polymer Overlay Req'd
Pavement Marking Paint Req'd

09-900wc SUPERELEVATION DATA

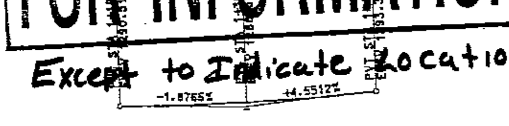
STATION	LEFT	RIGHT
1+240.000		+4.685%
1+250.000		+4.495%
1+260.000		+3.900%
1+295.000		+3.900%
1+305.000		+4.495%
1+315.000	+4.685%	+4.685%
		+3.785%
1+370.000	-2.000%	+2.000%

09-900wc CURVE DATA

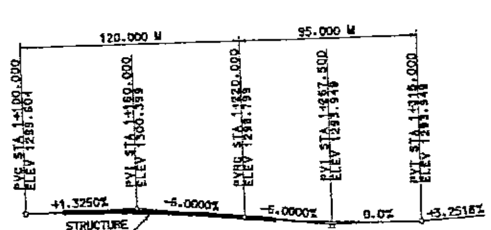
(09-13)
Δ = 15°44'51" RT
R = 350.000 M
L = 96.196 M
T = 48.403 M
PI STA 1+279.722
PC STA 1+231.319
PT STA 1+327.515

09-900we CURVE DATA

(09-38)
Δ = 53°45'49" LT
R = 75.000 M
L = 70.376 M
T = 38.020 M
PI STA 1+279.742
PC STA 1+241.723
PT STA 1+312.099



09-900wc PROFILE



09-900we PROFILE

CORRIDOR STANDARDS

CS-54	COPING DETAILS AT BRIDGES	(06/18/98)
CS-56	BRIDGE TRANS ELEM TYPOLOGY	(02/12/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-207	INTEGRAL ABUT ELAST BEARING	(06/03/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-225	APPROACH SLAB - TYPE C	(11/25/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-228	APPROACH DRAINAGE	(08/04/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
CS-232	GRAFFITI COVER DETAILS	(03/02/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-241	ELECTRICAL DETAILS	(03/11/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-261	COLOR APPLICATION - 1	(07/30/98)
CS-262	COLOR APPLICATION - 2	(09/15/98)
CS-263	CONC WATER REPELLENT LIMITS	(09/01/98)

INDEX OF SHEETS

GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
3. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252, GRADE 2, Fy = 359 MPa, MINIMUM.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
5. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
6. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS W4000(AE) EXCEPT WHERE SPECIFIED OTHERWISE.
7. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
8. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS.-

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

STRUCTURAL STEEL: Fy = 345 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: SEE DESIGN SPEEDS TABLE THIS SHEET

*SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

DESIGN SPEEDS

FACILITY	DESIGN SPEED (km/h)
09-900we	60
09-900wc	60

LEGEND

(A / 7H2) ALPHABET FOR SECTIONS NUMBERS FOR DETAILS; SHEET UPON WHICH SECTION OR DETAIL IS SHOWN; SHEET UPON WHICH SECTION OR DETAIL IS CUT

(A / -) INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET

(CS-XXX) CORRIDOR STANDARD

WASATCH CONSTRUCTORS
JAN 2 2 1999
RELEASED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
PAUL B. BLACKHAM
166132
1-8-99
STATE OF UTAH

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	893	M³	
SUPERSTRUCTURE CONCRETE	375	M³	
STRUCTURAL STEEL	203 680	KG	
REINFORCING STEEL (EPOXY COATED)	154 500	KG	
DRIVEN PILES 324 mm DIAMETER	3334	LIN M	

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10/28/98	INITIAL RELEASE
2	11/20/98	DIMENSION CHANGE (NDC-S0251)
3	12/31/98	REVISED NOTE AND DATES (NDC-S0260)

UTAH DEPARTMENT OF TRANSPORTATION

SVERDRUP/DE LEUW

TRAC NO. 2720700

DESIGN: SIMON SINGH 10/98 — PROJECT DESIGN ENGINEER
DRAWN: DVJ 9/98
CHECK: IKD 9/98
APPROVED: PAUL BLACKHAM 10/98 — PROJECT MANAGER

I-15 CORRIDOR RECONSTRUCTION
09-900we OVER 09-900wc
SITUATION & LAYOUT 1
PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
DWG. NO. C-837
SHT. 1 OF 29
REF. 09 STR C837S1.01

Sheet Index

2. SITUATION & LAYOUT 2
3. SITUATION & LAYOUT 3
4. SITUATION & LAYOUT 4
5. SITUATION & LAYOUT 5
6. SITUATION & LAYOUT 6
7. SITUATION & LAYOUT 7
8. SOIL DATA
9. FOUNDATION PLAN 1
10. FOUNDATION PLAN 2
11. FOUNDATION PLAN 3
12. ABUTMENT #1
13. ABUTMENT #15
14. ABUTMENT DETAILS 1
15. ABUTMENT DETAILS 2
16. ABUTMENT DETAILS 3
17. ABUTMENT DETAILS 4
18. FIXED BENT PLAN & ELEV 1
19. FIXED BENT PLAN & ELEV 2
20. EXPANSION BENT PLAN & ELEV
21. BENT DETAILS 1
22. BENT DETAILS 2
23. BENT DETAILS 3
24. BENTS #2-#6, & #10 FOOTING
25. BENTS #7 & #8 FOOTING
26. BENTS #9 & #13 FOOTING
27. BENT #11 FOOTING
28. BENT #12 FOOTING
29. BENT #14 FOOTING
30. BEARING SCHEDULE
31. FRAMING PLAN 1
32. FRAMING PLAN 2
33. FRAMING PLAN 3
34. FRAMING PLAN 4
35. FRAMING PLAN 5
36. FRAMING PLAN 6
37. FRAMING PLAN 7
38. FRAMING PLAN 8
39. FRAMING PLAN 9
40. FRAMING PLAN 10
42. TYPICAL GIRDER DETAILS
43. CAMBER DIAGRAMS 1
44. CAMBER DIAGRAMS 2
45. CAMBER DIAGRAMS 3
46. FIELD SPLICE DETAILS 1
47. FIELD SPLICE DETAILS 2
48. FIELD SPLICE DETAILS 3
49. FIELD SPLICE DETAILS 4
50A. BOLSTER DETAILS △
50. DECK PLAN 1
51. DECK PLAN 2
52. DECK PLAN 3
53. DECK PLAN 4
54. DECK PLAN 5
55. DECK PLAN 6
56. DECK PLAN 7
57. DECK PLAN 8
58. DECK PLAN 9
59. DECK PLAN 10
60. DECK SECTIONS
61. SCREED ELEVATIONS 1
62. SCREED ELEVATIONS 2
63. SCREED ELEVATIONS 3
64. SCREED ELEVATIONS 4
65. SCREED ELEVATIONS 5
66. SCREED ELEVATIONS 6
67. SCREED ELEVATIONS 7
68. APPROACH SLAB PLAN 1
69. APPROACH SLAB PLAN 2
70. SLOPE PROTECTION PLAN
71. RESTRAINERS BENT #5 & #10

CS-54	COPING DETAILS AT BRIDGES	(06/18/98)
CS-96	BRIDGE TRANSITION ELEMENT TYPOLOGY	(02/12/98)
CS-179-1	CONDUIT ROUTING DETAILS	(06/15/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-211	STL GDR FIX POT BEARING	(06/03/98)
CS-212	STL GDR EXP POT BEARING	(06/03/98)
CS-212A	STL GDR FIX ROCKER BEARING	(06/03/98)
CS-217	EXPANSION JOINT DETAILS	(08/10/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
△ CS-226	APPROACH SLAB - TYPE D	(06/15/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
△ CS-232	GRAFFITI COVER DETAILS	
△ CS-236	DECK DRAIN DETAILS	(08/21/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-245	TRANSITION ELEMENTS	(10/06/98)
CS-246	TRANSITION DETAILS 1	(06/03/98)
CS-247	TRANSITION DETAILS 2	(06/03/98)
CS-248	APPROACH SLAB DRAIN TYPE III	(03/11/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-255	MODULAR EXPANSION - 1	(09/30/98)
CS-256	MODULAR EXPANSION - 2	(09/30/98)
CS-261	COLOR APPLICATION - 1	(07/30/98)
CS-262	COLOR APPLICATION - 2	(09/15/98)
CS-263	CONC WATER REPELLENT LIMITS	(09/01/98)

(A 7/12) ALPHABET FOR SECTIONS, NUMBERS FOR DETAILS; SHEET UPON WHICH SECTION OR DETAIL IS SHOWN; SHEET UPON WHICH SECTION OR DETAIL IS CUT

(A —) INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET

(CS-XXX) CORRIDOR STANDARD

GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
3. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252. GRADE 2, Fy = 359 MPa, MINIMUM.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
5. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
6. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
7. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
8. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

STRUCTURAL STEEL: Fy = 345 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

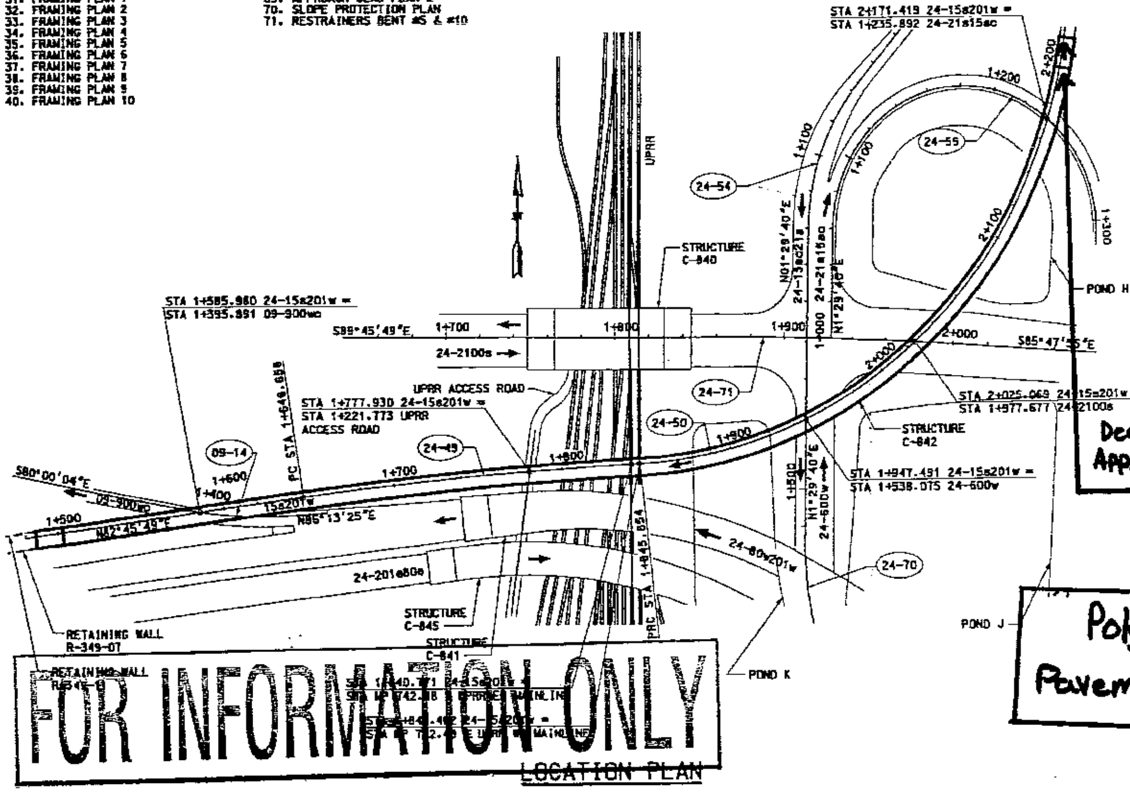
WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: SEE DESIGN SPEED TABLE BELOW

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

DESIGN SPEEDS

FACILITY	DESIGN SPEED (km/h)
24-15s201w	80
24-600w	60
24-2100s	60
24-21s15ac	40
24-900wc	80



FOR INFORMATION ONLY

Except to Indicate Location of Req'd Work

Polymer Overlay Req'd

Pavement Marking Paint Req'd

WASATCH CONSTRUCTORS

DEC 16 1998

RELEASED FOR CONSTRUCTION

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	2762	M^3	
SUPERSTRUCTURE CONCRETE	1712	M^3	
STRUCTURAL STEEL	1692	10^3 KG	
REINFORCING STEEL (EPOXY COATED)	660 600	KG	
DRIVEN PILES 324 mm DIAMETER	8868	LIN M	
DRIVEN PILES 406 mm DIAMETER	—	LIN M	

LICENSED PROFESSIONAL ENGINEER — PAUL B. BLACKHAM — 168137 — 11-1998 — STATE OF UTAH

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
	08/19/98	INITIAL RELEASE
△	10/28/98	NDC-S0187 GENERAL REVISIONS
△		FDN 2-0479 ADD CS-212A
△	11/17/98	NDC-S0235 GENERAL REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION

SVERDRUP/DE LEUW

TRAC NO. 2320400

DESIGN: KWM 5/98 — CHECK: DAK 5/98; DRAWN: RFH 5/98 — CHECK: DAK 5/98; QUANT.: SJM 5/98 — CHECK: DAK 5/98

APPROVAL RECOM.: DOUGLAS KIRKPATRICK, PROJECT DESIGN ENGINEER, 5/98; APPROVED: PAUL BLACKHAM, PROJECT MANAGER, 5/98

I-15 CORRIDOR RECONSTRUCTION

I-15 SB TO SR 201WB

SITUATION & LAYOUT 1

PROJ. NO. *SP-15-7(135)296

SALT LAKE COUNTY

DWG. NO. C-842

SHT. 1 OF 71

GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM-A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M-203M GRADE 270 EXCEPT WHERE NOTED OTHERWISE.
3. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252. GRADE 2. Fy = 359 MPa. MINIMUM.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
5. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
6. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
7. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
8. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.
9. DECK SLAB IS DESIGNED TO ACT COMPOSITELY WITH THE GIRDER FOR LOADS INTRODUCED WITH AND SUBSEQUENT TO GIRDER POST-TENSIONING. SHORING SYSTEM IS NECESSARY TO SUPPORT GIRDERS DURING CONSTRUCTION AND REPLACEMENT OF DECK SLAB.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS. UNLESS NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; f'c (DECK & SPLICE DIAPHRAGM) = 35 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

PRESTRESSED CONCRETE: f'c = 52 MPa; f'ci = SEE GIRDER SCHEDULES; fy (NONPRESTRESSED) = 420 MPa; n = 6; DESIGN METHOD: ALLOWABLE STRESS DESIGN WITH MS 18 (HS 20-44). AND LOAD FACTOR DESIGN WITH MS 22.5 (HS25-44).

PRESTRESSING STRANDS: 15.24 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND: AASHTO M-203M; fpu = 1860 MPa

POST TENSIONING STRANDS: 12.70 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND: AASHTO M-203M; fpu = 1860 MPa

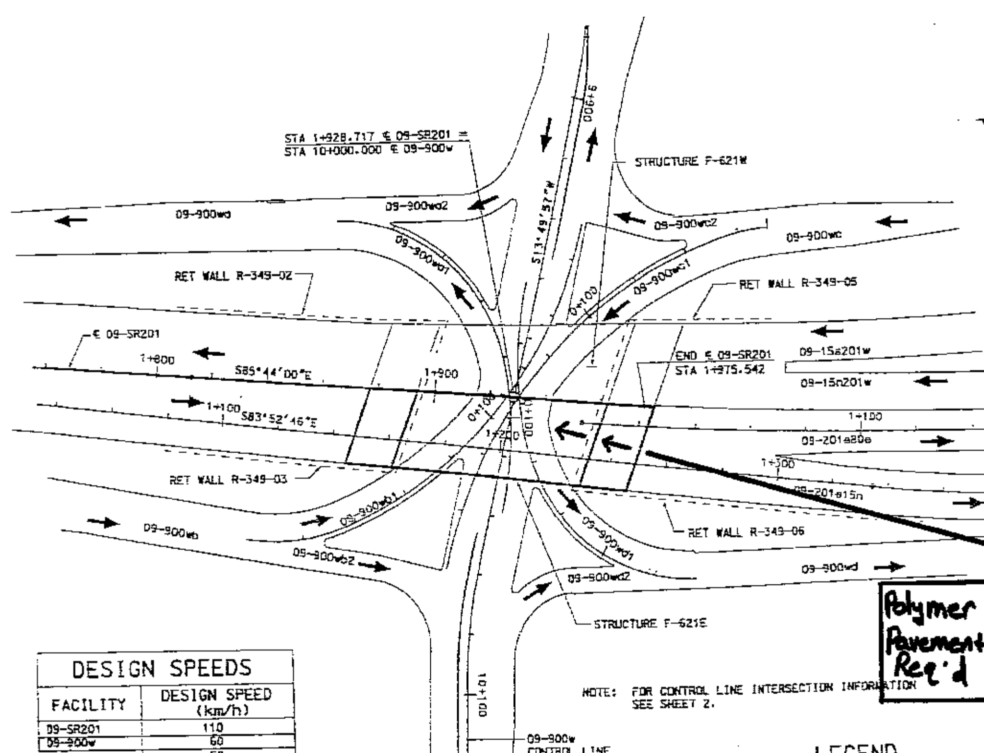
WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 KPa

DESIGN SPEED: SEE DESIGN SPEED TABLE THIS SHEET

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.758g

Deck & App. Slabs

Polymer overlay Req'd Pavement Marking Paint Req'd



NOTE: FOR CONTROL LINE INTERSECTION INFORMATION SEE SHEET 2.

LOCATION PLAN

FOR INFORMATION ONLY

Except to Indicate Location of Req'd Work

DESIGN SPEEDS	
FACILITY	DESIGN SPEED (km/h)
09-SR201	110
09-900w	60
09-900wa	60
09-900wb	50
09-900wc	60
09-900wd	[illegible]
09-900wa1	[illegible]
09-900wa2	[illegible]
09-900wb1	[illegible]
09-900wb2	[illegible]
09-900wc1	[illegible]
09-900wc2	30
09-900wd1	30
09-900wd2	30

LEGEND

- (A / 7|12) ALPHABET FOR SECTIONS, NUMBERS FOR DETAILS; SHEET UPON WHICH SECTION OR DETAIL IS SHOWN; SHEET UPON WHICH SECTION OR DETAIL IS CUT
- (A / —) INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET
- (CS-XXX) CORRIDOR STANDARD
- UNDERDECK LIGHT

CORRIDOR STANDARDS

CS-100	UNDER DECK SIGNAL HEAD	(09/25/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-215	PRECAST PANEL DECK FORM 1	(09/24/98)
CS-216	PRECAST PANEL DECK FORM 2	(09/03/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-225	APPROACH SLAB - TYPE C	(11/25/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-229	APPROACH DRAINAGE	(08/04/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-240	CONC MEDIAN PARAPET RC DECK	(07/22/98)
CS-241	ELECTRICAL DETAILS	(03/11/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-245	TRANSITION ELEMENTS	(11/16/98)
CS-246	TRANSITION DETAILS 1	(06/03/98)
CS-247	TRANSITION DETAILS 2	(06/03/98)
CS-248	APPROACH SLAB DRAIN TYPE III	(03/11/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-252	MEDIAN PARAPET AT APPR - 1	(08/11/98)
CS-253	MEDIAN PARAPET AT APPR - 3	(08/11/98)
CS-261	COLOR APPLICATION - 1	(11/16/98)

INDEX OF SHEETS

QUANTITIES			
ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	148	M^3	
SUPERSTRUCTURE CONCRETE	695	M^3	
STRUCTURAL STEEL		KG	
POST-TENSIONING FOR DECK SLAB		KG	
REINFORCING STEEL (EPOXY COATED)	54 455	KG	
DRIVEN PILES 324 mm DIAMETER		LIN M	
DRIVEN PILES 406 mm DIAMETER	2,287	LIN M	
PRESTRESSED GIRDER SERIES W2400MG	[illegible]	LIN M	

LICENSED PROFESSIONAL ENGINEER — B. BLACKHAM — 168137 — 4-16-99 — STATE OF UTAH

NO.	DATE	DESCRIPTION
		APPROVED FOR CONSTRUCTION
1	05/28/98	INITIAL RELEASE
2	11/13/98	MODIFIED CS LIST, OMITTED SHEET 27
3	11/09/98	FINAL SUBMITTAL COMMENTS

UTAH DEPARTMENT OF TRANSPORTATION

SVERDRUP/DE LEUW — TRAC NO. 2720400

DESIGN: FAA 3/98, CHECK MHR 4/98; DRAWN: SHW 3/98, CHECK DAB 4/98; QUANT: DAB 3/98, CHECK MHR 4/98

APPROVAL RECOMM. J. G. WILSON, PROJECT DESIGN ENGINEER 4/98; APPROVED D. E. WAGNER, PROJECT MANAGER 4/98

I-15 CORRIDOR RECONSTRUCTION

SR-201 EB OVER 900 WEST

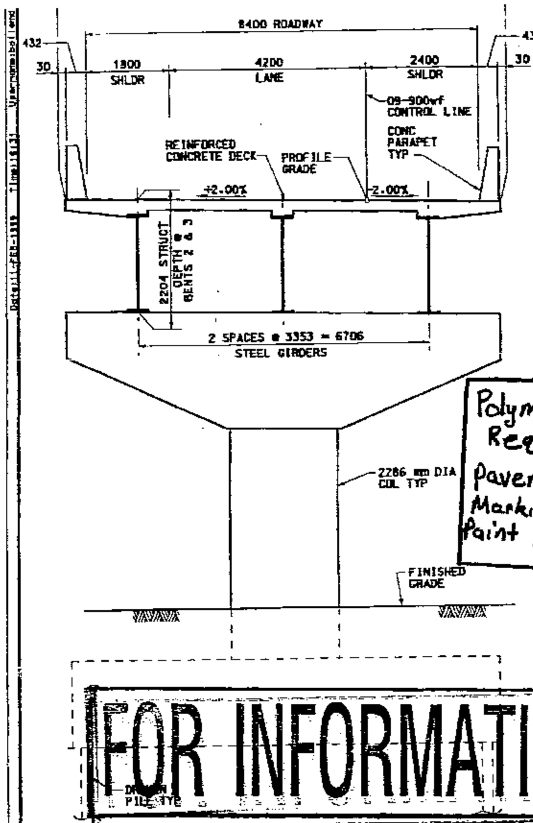
SITUATION & LAYOUT 1

PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY

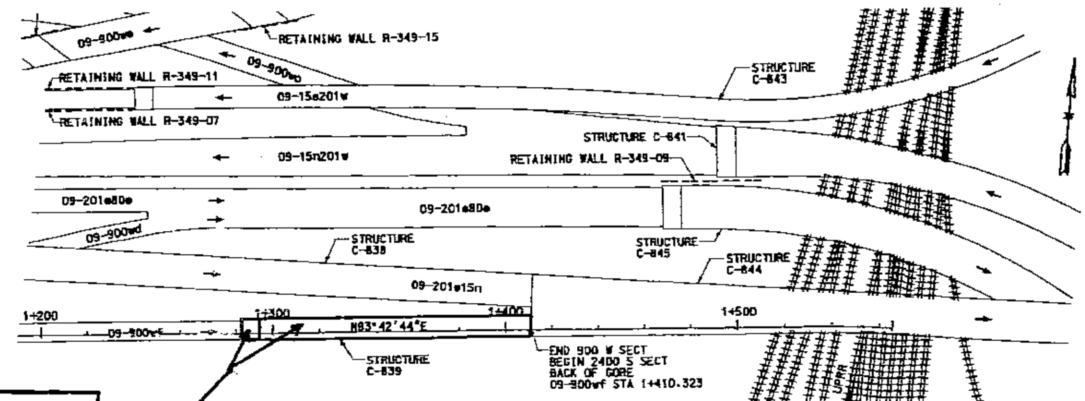
DWG. NO. F-621E

SHT. 1 OF 27



SECTION THRU STRUCTURE

Except to Indicate Location of Req'd Work



LOCATION PLAN

Deck + App slabs

Polymer Overlay Req'd
Pavement Marking Paint Req'd

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

STRUCTURAL STEEL: Fy = 345 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: 80 (09-900wf) 80 (09-201e15n)

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

FOR INFORMATION ONLY

INDEX OF SHEETS

1. SITUATION & LAYOUT 1
2. SITUATION & LAYOUT 2
3. SOIL DATA
4. BOUNDARY
5. BOUNDARY
6. ABUTMENT #1
7. ABUTMENT DETAILS
8. BENT DETAILS 1
9. BENT DETAILS 2
10. SHEAR KEY DETAILS 1
11. SHEAR KEY DETAILS 2
12. FOOTING DETAILS
13. FRAMING PLAN 1
14. FRAMING PLAN 2
15. CAMBER DIAGRAMS
16. FIELD SPLICE & MISC DETAILS
17. TYPICAL GIRDER DETAILS
18. DIAPHRAGM LAYOUTS
19. DECK PLAN 1
20. DECK PLAN 2
21. DECK SECTION
21A. RESTRAINER DETAILS
22. BEARING SCHEDULE
23. SCREED ELEVATIONS 1
24. SCREED ELEVATIONS 2
25. SCREED ELEVATIONS 3
26. APPROACH SLAB PLAN
27. SLOPE PROTECTION PLAN

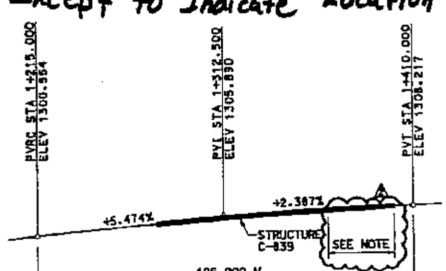
GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
3. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252, GRADE 2, Fy = 359 MPa, MINIMUM.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
5. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
6. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
7. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
8. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

CORRIDOR STANDARDS

CS-96	BRIDGE TRANS ELEMENT TYPOLOGY	(02/12/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-207	INTEGRAL ABUT ELAST BEARING	(06/03/98)
CS-209	STL GRD EXP ELAST BEARING	(06/03/98)
CS-212A	STL GRD FIX ROCKER BEARING	(06/03/98)
CS-217	EXPANSION JOINT DETAILS	(08/10/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-225	APPROACH SLAB - TYPE C	(06/15/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-229	APPROACH SLAB DRAIN TYPE I	(03/11/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
CS-232	GRAFFITI COVER DETAILS	(03/02/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-261	COLOR APPLICATION-1	(07/30/98)
CS-262	COLOR APPLICATION-2	(09/15/98)
CS-263	CONC WATER REPELLENT LIMITS	(09/01/98)

LICENSED PROFESSIONAL ENGINEER
PAUL B. BLACKHAM
169137
2-12-99
STATE OF UTAH



09-900wf PROFILE

NOTE: PROFILE WARPING FROM STA 1+375.200 TO STA 1+409.752

LEGEND

ALPHABET FOR SECTIONS NUMBERS FOR DETAILS
SHEET UPON WHICH SECTION OR DETAIL IS SHOWN
SHEET UPON WHICH SECTION OR DETAIL IS CUT
INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET
(CS-XXX) CORRIDOR STANDARD

QUANTITIES

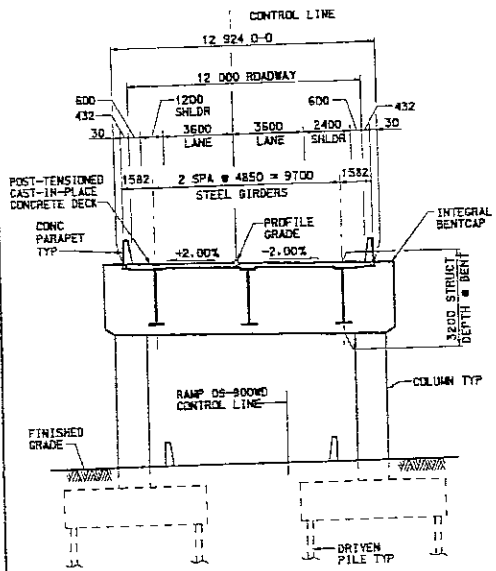
ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	566	M^3	
SUPERSTRUCTURE CONCRETE	335	M^3	
STRUCTURAL STEEL	209 177	KG	
POST-TENSIONING FOR DECK SLAB	-	KG	
REINFORCING STEEL (EPOXY COATED)	108 795	KG	
DRIVEN PILES 324 mm DIAMETER	1565	LIN M	
DRIVEN PILES 406 mm DIAMETER	225	LIN M	
PRESTRESSED GIRDER SERIES	-	LIN M	
POST-TENSIONING FOR GIRDER	-	KG	

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10/16/98	INITIAL RELEASE
2	01/28/99	NDC-50283 REVISED CORRIDOR STANDARDS LIST

UTAH DEPARTMENT OF TRANSPORTATION
SVERDRUP/DE LEUW
TRAC NO. 2323100
DESIGN J.B. WILSON, PROJECT DESIGN ENGINEER
D.E. WAGNER, PROJECT MANAGER

I-15 CORRIDOR RECONSTRUCTION
SR 201EB RAMP 9F TO I-15NB
SITUATION & LAYOUT 1
PROJECT NUMBER *SP-15-7(135)296
SALT LAKE COUNTY
DWG. NO. C-839
SHT. 1 OF 27



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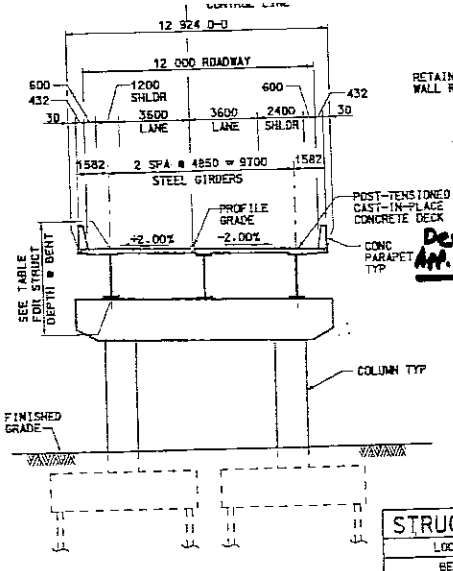

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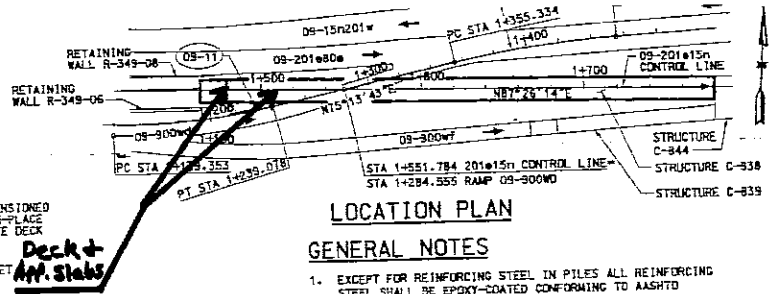


LOCATION PLAN

Polymer Overlay Req'd
Pavement Marking Paint Req'd

GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M-203M GRADE 270 EXCEPT WHERE NOTED OTHERWISE.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
4. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252, GRADE 2, Fy = 359 MPa, MINIMUM.
5. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
6. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
7. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
8. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
9. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

STRUCTURE DEPTH TABLE	
LOCATION	DEPTH
BENT #2	3200
BENT #3	2331
BENT #4	2351
BENT #5	2345
BENT #6	2346
BENT #1 STRUCTURE C-844	2321

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN UNLESS OTHERWISE NOTED

POST-TENSIONED DECKS: f'c = 35 MPa; f'ci = 28 MPa; fy (NONPRESTRESSED) = 420 MPa; n = 7; DESIGN METHOD: ALLOWABLE STRESS DESIGN WITH MS 18 (HS 20-44), AND LOAD FACTOR DESIGN.

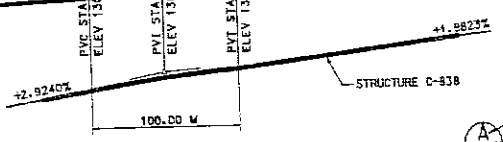
PRESTRESSING STRANDS: 15.24 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND, AASHTO M-203M; fpu = 1860 MPa

STRUCTURAL STEEL: Fy = 345 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

WEARING SURFACE: 13 mm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: 80 km/h (09-201e15n); 80 km/h (09-900wd)

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA, TYPE 2 DESIGN SPECTRUM PSA = 0.76g



RAMP 09-900wd PROFILE

09-201e15n PROFILE

LEGEND

- A / 7 / 12 — ALPHABET FOR SECTIONS; NUMBERS FOR DETAILS; SHEET UPON WHICH SECTION OR DETAIL IS SHOWN; SHEET UPON WHICH SECTION OR DETAIL IS CUT
- A / 1 — INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET
- (CS-XXX) — CORRIDOR STANDARD

INDEX OF SHEETS

CORRIDOR STANDARDS

CS-54-7	COPING DETAILS AT BRIDGES	(07/24/98)
CS-96	BRIDGE TRANSITION ELEMENT TYPOLOGY	(02/12/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-215	INTERMEDIATE DIAPHRAGM	(03/23/98)
CS-217	EXPANSION JOINT DETAILS	(11/16/98)
CS-218	PT DECK DETAILS 1	(03/23/98)
CS-219	PT DECK DETAILS 2	(02/20/98)
CS-220	PT DECK DETAILS 3	(05/01/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-226	APPROACH SLAB - TYPE D	(06/15/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-228	APPROACH DRAINAGE	(08/04/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
CS-232	GRAFFITI COVER DETAILS	(03/02/98)
CS-233	RESTRAINER TYPE 1 - DET 1	(11/10/97)
CS-234	RESTRAINER TYPE 1 - DET 2	(11/10/97)
CS-236	DECK DRAIN DETAILS	(11/21/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-238	CONC PARAPET PT DECK	(07/22/98)
CS-241	ELECTRICAL DETAILS	(03/11/98)
CS-243	LIGHT POLE MOUNT	(07/22/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-248	APPROACH SLAB DRAIN TYPE III	(03/11/98)
CS-255	MODULAR EXP JOINT - 1	(09/30/98)
CS-256	MODULAR EXP JOINT - 2	(09/30/98)
CS-261	COLOR APPLICATION - 1	(11/16/98)
CS-262	COLOR APPLICATION - 2	(11/16/98)
CS-263	CONC WATER REPELLENT LIMITS	(09/01/98)

SA - SL

1.	SITUATION AND LAYOUT 1
2.	SITUATION AND LAYOUT 2
3.	SITUATION AND LAYOUT 3
4.	SITUATION AND LAYOUT 4
5.	SOIL DATA
6.	FOUNDATION PLAN 1
7.	FOUNDATION PLAN 2
8.	FOUNDATION PLAN 3
9.	ABUTMENT #1
10.	ABUTMENT #1 DETAILS
11.	ABUTMENT #1 DIAPHRAGM
12.	ABUTMENT #1 DIAPHRAGM SECTIONS
13.	WINGWALL DETAILS
14.	BENT #2
15.	BENT #3
16.	BENT #4
17.	BENT #5 & #6
18.	BENT #5 DETAILS
19.	BENT #6 DETAILS
20.	BENT #4 DETAILS
21.	BENT #5 & #6 DETAILS
22.	BENT DETAILS 1
23.	BENT DETAILS 2
24.	COLUMN BASE CASING DETAILS
25.	BENT FOOTING DETAILS 1
26.	BENT FOOTING DETAILS 2
27.	BENT FOOTING DETAILS 3
28.	BENT FOOTING DETAILS 4
29.	FRAMING PLAN 1
30.	FRAMING PLAN 2
31.	FRAMING PLAN 3
32.	FRAMING PLAN 4
33.	FRAMING PLAN 5
34.	CAMBER DIAPHRAGM
35.	TYPICAL GIRDER DETAILS
36.	FIELD SPLICE DETAILS 1
37.	FIELD SPLICE DETAILS 2
38.	CROSSFRAME LAYOUTS
38A.	DIAPH & MISC GIRDER DETAILS
38B.	DIAPHRAGM LAYOUTS
39.	BEARING DETAILS 1
40.	BEARING DETAILS 2
41.	GIRDER RESTRAINER TYPE I
42.	GIRDER RESTRAINER TYPE II
43.	GIRDER RESTRAINER TYPE III
43A.	EARTHQUAKE RESTRAINER
43B.	RESTRAINER BRACKET DETAILS
44.	ABUTMENT BEARING DETAILS
45.	DECK PLAN
46.	DECK SECTION
47.	SCREED ELEVATIONS 1
48.	SCREED ELEVATIONS 2
49.	SCREED ELEVATIONS 3
50.	SCREED ELEVATIONS 4
51.	SCREED ELEVATIONS 5
52.	SCREED ELEVATIONS 6
53.	APPROACH SLAB ABUT #1
54.	SLOPE PROTECTION PLAN

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	1643	M³	
SUPERSTRUCTURE CONCRETE	1145	M³	
STRUCTURAL STEEL	793 071	KG	
POST-TENSIONING FOR DECK SLAB	22 930	KG	
REINFORCING STEEL (EPOXY COATED)	343 881	KG	
DRIVEN PILES 324 mm DIAMETER	10 104	LIN M	
DRIVEN PILES 406 mm DIAMETER	489	LIN M	
PRESTRESSED GIRDER SERIES	—	LIN M	

LICENSED PROFESSIONAL ENGINEER — PAUL B. BLACKHAM — 168137 — 2-11-99 — STATE OF UTAH

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10/21/98	INITIAL RELEASE
2	11/13/98	NDC-50209 REVISED INDEX OF SHEETS
3	02/12/99	NDC-50323 REVISED CORRIDOR STANDARDS LIST

UTAH DEPARTMENT OF TRANSPORTATION

SVERDRUP/DE LEUW

TRAC NO. 2720100

I-15 CORRIDOR RECONSTRUCTION

SR 201 EB RAMP OVER RAMP 9D

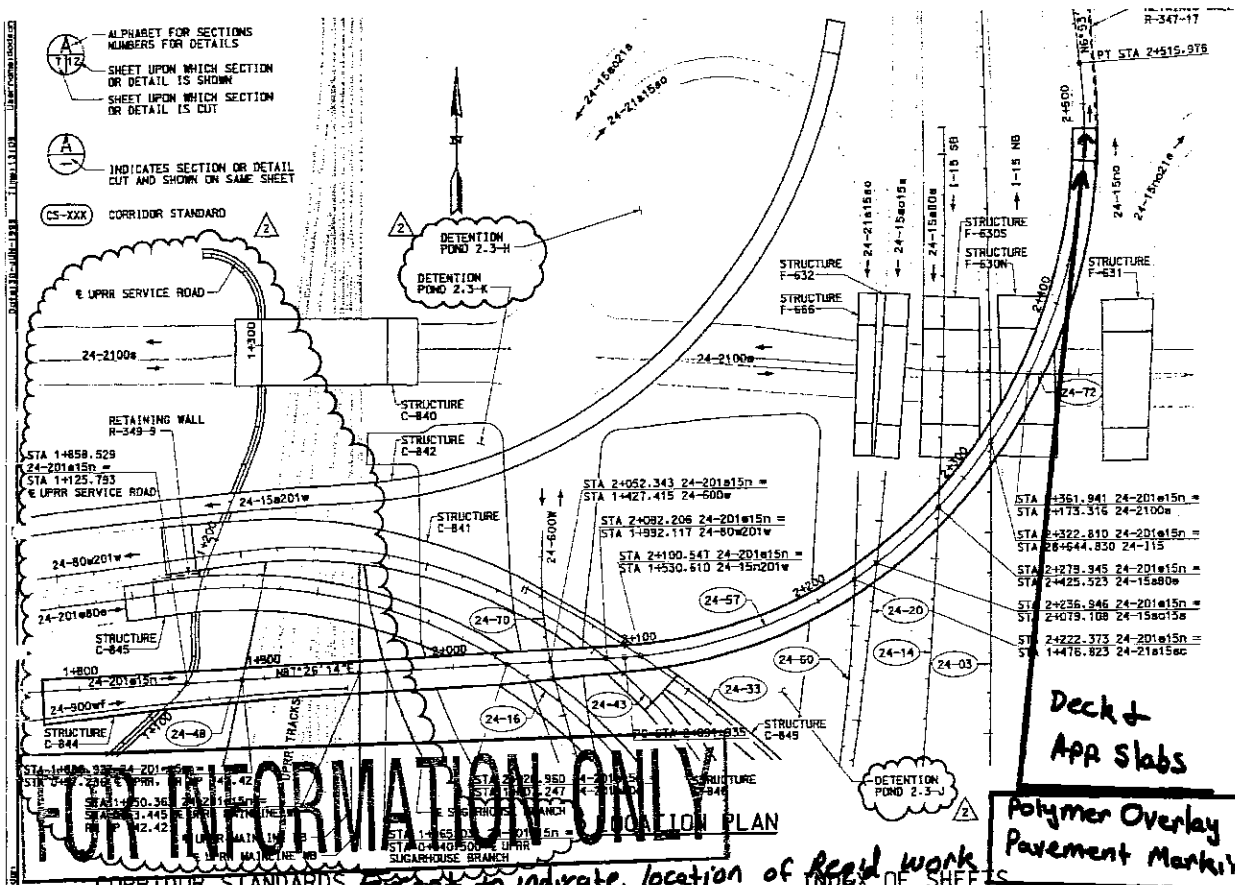
SITUATION & LAYOUT 1

SALT LAKE COUNTY

DWG. NO. C-836

SHT. 1 OF 5

*SP-15-7(113)296



LOCATION PLAN

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M-203M GRADE 270 EXCEPT WHERE NOTED OTHERWISE.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
4. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252, GRADE 2. Fy = 359 MPa, MINIMUM.
5. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
6. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
7. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE, f'c = 28 MPa.
8. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 5% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
9. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS UNLESS OTHERWISE NOTED.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa; fy (REINF) = 420 MPa; DESIGN METHOD: LOAD FACTOR DESIGN UNLESS OTHERWISE NOTED

POST-TENSIONED DECKS: f'c = 35 MPa; f'ci = 28 MPa; fy (NONPRESTRESSED) = 420 MPa; n = 7; DESIGN METHOD: ALLOWABLE STRESS; DESIGN WITH MS 18 (HS 20-44), AND LOAD FACTOR DESIGN WITH MS 22.5 (HS25-44).

PRESTRESSING STRANDS: 15.24 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND. AASHTO M-203M; fpu = 1860 MPa

STRUCTURAL STEEL: Fy = 345 MPa; DESIGN METHOD: LOAD FACTOR DESIGN

WEARING SURFACE: 13 cm CONCRETE; FUTURE 1.7 kPa

DESIGN SPEED: SEE DESIGN SPEED TABLE BELOW

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

FOR INFORMATION ONLY

Except to indicate location of Reqd work

Deck & App Slabs

Polymer Overlay Req'd
Pavement Marking Paint Req'd

CORRIDOR STANDARDS

CS-86	BRIDGE TRANSITION ELEMENT TYPOLOGY	(02/12/98)
CS-54-1	COPING DETAIL AT BRIDGES	(10/16/98)
CS-54-2	COPING DETAIL AT BRIDGES	(06/17/98)
CS-54-3	COPING DETAIL AT BRIDGES	(10/16/98)
CS-174-2	SIGN FOUNDATION DETAILS	(11/16/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-207	INTEGRAL ABUT ELAST BEARING	(06/03/98)
CS-209	STL GRD EXP ELAST BEARING	(11/20/98)
CS-211	STL GRD FIX POT BEARING	(06/03/98)
CS-212A	STL GRD FIX ROCKER BEARING	(06/03/98)
CS-217	EXPANSION JOINT DETAILS	(11/16/98)
CS-218	PT DECK DETAILS 1	(03/23/98)
CS-219	PT DECK DETAILS 2	(02/20/98)
CS-220	PT DECK DETAILS 3	(05/01/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-225	APPROACH SLAB - TYPE C	(11/25/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
CS-232	GRAFFITI COVER DETAILS	(03/02/98)
CS-235	CHAIN LINK FENCE - BRIDGE	(11/10/97)
CS-236	DECK DRAIN DETAILS	(11/21/98)
CS-237	CONC PARAPET RC DECK	(07/22/98)
CS-238	CONC PARAPET PT DECK	(07/22/98)
CS-241	ELECTRICAL DETAILS	(03/11/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-245	TRANSITION ELEMENTS	(11/16/98)
CS-246	TRANSITION DETAILS 1	(06/03/98)
CS-247	TRANSITION DETAILS 2	(06/03/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-255	MODULAR EXP JOINT - 1	(09/30/98)
CS-256	MODULAR EXP JOINT - 2	(09/30/98)
CS-261	COLOR APPLICATION - 1	(11/16/98)
CS-262	COLOR APPLICATION - 2	(11/16/98)
CS-263	CONC WATER REPELLENT LIMITS	(09/01/98)

INDEX OF SHEETS

DESIGN SPEEDS

FACILITY	DESIGN SPEED (km/h)
24-201e15n	80
24-201e80e	80
24-600w	60
24-15a15a	80
24-15n201w	80
24-900wf	80
24-80w201w	80
24-115	110
24-15a80e	80
24-2100e	60

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	4480	M^3	
SUPERSTRUCTURE CONCRETE	2890	M^3	
STRUCTURAL STEEL	2 870 000	KG	
POST-TENSIONING FOR DECK SLAB	65 000	KG	
REINFORCING STEEL (EPOXY COATED)	1 006 000	KG	
DRIVEN PILES 324 mm DIAMETER	6140	LIN M	
DRIVEN PILES 406 mm DIAMETER	8530	LIN M	

LICENSED PROFESSIONAL ENGINEER
NO. 98-324447-2202
JOHN M. TERRY
3-31-99
STATE OF UTAH

BRM 146

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	11/06/98	INITIAL RELEASE
2	02/25/99	ADDED UPRR SERVICE ROAD AND NE CORRIDOR STANDARD LIST
3	4/30/99	REVISED LINE WEIGHT

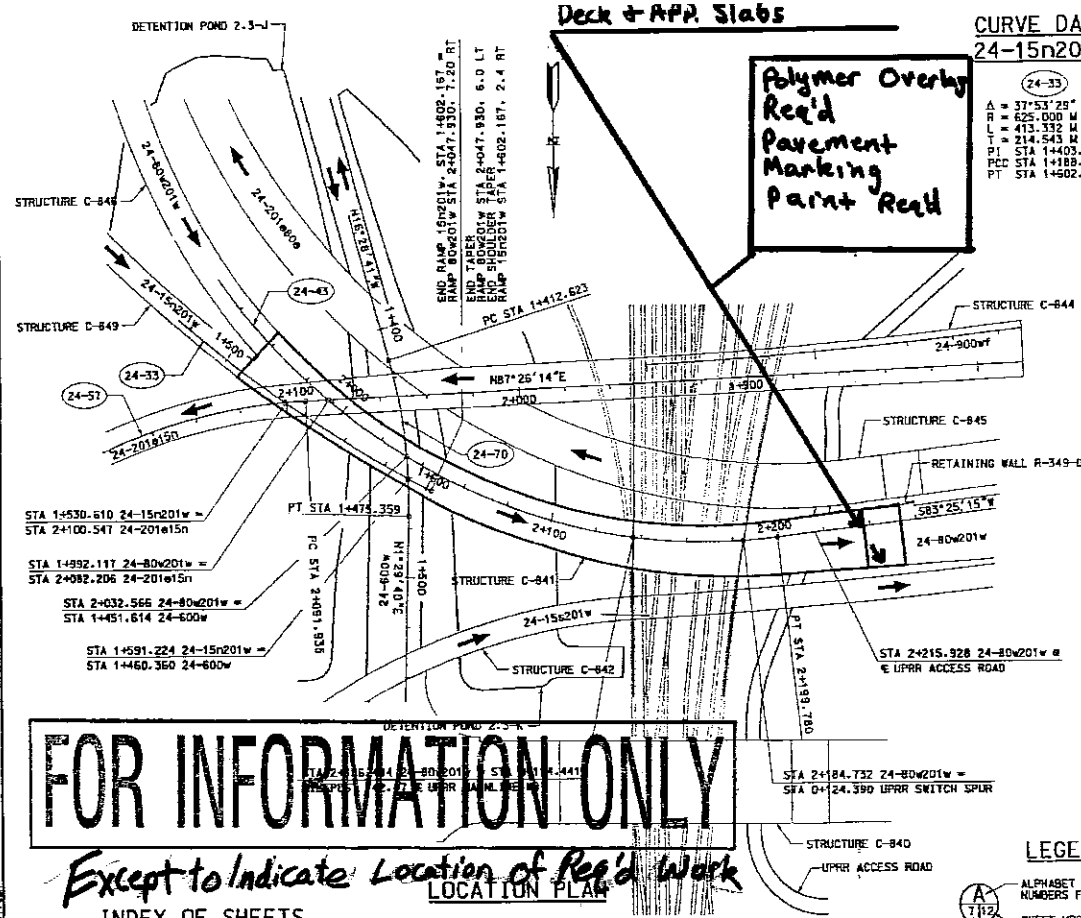
UTAH DEPARTMENT OF TRANSPORTATION
SVERDRUP/JOE LEUW
TRAC NO. 2323000

DESIGN RMS 01/98 — K.T. FERGUSON
DRAWN JES 01/98 — PROJECT DESIGN ENGINEER
QUANT. DTC 11/98 — G.S. WARNER
CHECK AJT 01/98 — PROJECT MANAGER
CHECK DAM 01/98
CHECK DAM 11/98

APPROVED 11/98 — RECOMMENDED 11/98 — DATE

I-15 CORRIDOR RECONSTRUCTION
SR201 EB TO I-15 NB
SITUATION & LAYOUT 1
PROJECT NUMBER MSP-15-7(135)296
SALT LAKE COUNTY
DWG. NO. C-844
SHT. 1 OF 89
REF. 24 STR C844S1.DGN

Deck & App. Slabs



Polymer Overlay Req'd
Pavement Marking Paint Req'd

CURVE DATA 24-15n201w (24-33)

Δ = 37°53'29" LT
R = 625.000 M
L = 413.332 M
T = 214.543 M
PI STA 1+403.378
PC STA 1+188.835
PT STA 1+602.167

CURVE DATA 24-80w201w (24-43)

Δ = 81°34'25" LT
R = 265.000 M
L = 377.288 M
T = 228.636 M
PI STA 2+051.127
PC STA 1+822.491
PT STA 2+193.780

CURVE DATA 24-201e15n (24-57)

Δ = 94°19'36" RT
R = 260.000 M
L = 428.041 M
T = 280.414 M
PI STA 2+372.349
PC STA 2+091.935
PT STA 2+519.976

CURVE DATA 24-600w (24-70)

Δ = 17°58'21" RT
R = 200.000 M
L = 62.736 M
T = 31.628 M
PI STA 1+444.251
PC STA 1+412.623
PT STA 1+475.359

GENERAL NOTES

1. EXCEPT FOR REINFORCING STEEL IN PILES ALL REINFORCING STEEL SHALL BE EPOXY-COATED CONFORMING TO AASHTO M 284. ALL REINFORCING STEEL SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 GRADE 420 EXCEPT ALL COLUMN VERTICAL REINFORCING STEEL AND COLUMN SPIRALS SHALL CONFORM TO ASTM A706 GRADE 420.
2. ALL PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M-203M GRADE 270 EXCEPT WHERE NOTED OTHERWISE.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M GRADE 345 EXCEPT WHERE NOTED OTHERWISE.
4. STEEL FOR DRIVEN PILES SHALL CONFORM TO ASTM A-252. GRADE 2. Fy = 359 MPa. MINIMUM.
5. CHAMFER ALL EXPOSED CONCRETE CORNERS 20 mm EXCEPT WHERE NOTED OTHERWISE.
6. PROVIDE 50 mm CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
7. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE SPECIFIED OTHERWISE. f'c = 28 MPa.
8. CONCRETE FOR CAST-IN-PLACE DECKS SHALL CONTAIN 6% SILICA FUME BY WEIGHT OF CEMENTITIOUS MATERIALS.
9. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS SHOWN ARE IN METERS.

DESIGN DATA

MS 22.5 (HS25-44) OR ALTERNATE INTERSTATE LOADING IN ACCORDANCE WITH 1996 AASHTO SPECIFICATIONS UNLESS OTHERWISE NOTED.

CAST-IN-PLACE CONCRETE: f'c = 28 MPa@ fy (REINF.) = 420 MPa@ DESIGN METHOD: LOAD FACTOR DESIGN UNLESS OTHERWISE NOTED

POST-TENSIONED DECKS: f'c = 35 MPa@ f'ci = 28 MPa fy (NONPRESTRESSED) = 420 MPa@ n = 7 DESIGN METHOD: ALLOWABLE STRESS DESIGN WITH MS 18 (HS 20-44), AND LOAD FACTOR DESIGN WITH MS 22.5 (HS25-44).

PRESTRESSING STRANDS: 15.24 mm DIAMETER SEVEN WIRE LOW RELAXATION STRAND, AASHTO M-203M: fpu = 1860 MPa

STRUCTURAL STEEL: Fy = 345 MPa DESIGN METHOD: LOAD FACTOR DESIGN

WEARING SURFACE: 13 mm CONCRETE: FUTURE 1.7 kPa

DESIGN SPEED: 80 km/h 24-80w201w 60 km/h 600w

SEISMIC: I-15 CORRIDOR SEISMIC PERFORMANCE CRITERIA. TYPE 2 DESIGN SPECTRUM PSA = 0.768g

LEGEND

- A / 7|12 — ALPHABET FOR SECTIONS NUMBERS FOR DETAILS; SHEET UPON WHICH SECTION OR DETAIL IS SHOWN; SHEET UPON WHICH SECTION OR DETAIL IS CUT
- A — INDICATES SECTION OR DETAIL CUT AND SHOWN ON SAME SHEET
- (CS-XXX) CORRIDOR STANDARD

FOR INFORMATION ONLY

Except to Indicate Location of Req'd Work

LOCATION PLAN

INDEX OF SHEETS

CORRIDOR STANDARDS

CS-54	COPING DETAILS AT BRIDGES	(06/17/98)
CS-96	BRIDGE TRANS ELEMENT TYPOLOGY	(02/02/98)
CS-174-2	SIGN FOUNDATION DETAILS	(11/06/98)
CS-178-1	UNDER DECK LIGHTING DETAILS	(03/10/98)
CS-179-1	CONDUIT ROUTING DETAILS	(06/19/98)
CS-200	DRIVEN PILE DETAILS	(08/10/98)
CS-211	STL GRD FIX POT BEARING	(06/03/98)
CS-212	STL GRD EXP POT BEARING	(06/03/98)
CS-217	EXPANSION JOINT DETAILS	(11/16/98)
CS-218	PT DECK DETAILS 1	(03/23/98)
CS-219	PT DECK DETAILS 2	(02/20/98)
CS-220	PT DECK DETAILS 3	(05/01/98)
CS-221	PEDESTAL & ANCHOR BOLT DET	(03/02/98)
CS-226	APPROACH SLAB - TYPE D	(06/15/98)
CS-227	APPROACH SLAB DETS - C & D	(06/15/98)
CS-228	APPROACH DRAINAGE	(08/04/98)
CS-231	SLOPE PROTECTION DETAILS	(09/11/98)
CS-232	GRAFFITI COVER DETAILS	(03/02/98)
CS-235	CHAIN LINK FENCE - BRIDGE	(11/10/97)
CS-236	DECK DRAIN DETAILS	(11/21/98)
CS-237	CONC PARAPET AC DECK	(07/22/98)
CS-238	CONC PARAPET PT DECK	(07/22/98)
CS-244	BRIDGE NUMBER DETAILS	(02/20/98)
CS-249	APPROACH SLAB DRAIN TYPE IV	(03/11/98)
CS-255	MODULAR EXP JOINT - 1	(09/30/98)
CS-256	MODULAR EXP JOINT - 2	(09/30/98)
CS-261	COLOR APPLICATION - 1	(11/16/98)

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONSTRUCTED
SUBSTRUCTURE CONCRETE	2684	M^3	
SUPERSTRUCTURE CONCRETE	1847	M^3	
STRUCTURAL STEEL (A)	1'043 954 / 35 607	KG	
POST-TENSIONING FOR DECK SLAB		KG	
REINFORCING STEEL (EPOXY COATED)	546 150	KG	
DRIVEN PILES 324 mm DIAMETER	1289	LIN M	
DRIVEN PILES 406 mm DIAMETER	5186	LIN M	

LICENSED PROFESSIONAL ENGINEER — PAUL B. BLACKHAM — 168137 — 6-14-99 — STATE OF UTAH

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
4	01/28/99	NOC-50292 ADDED CS-96, CS-211, & CS-212 TO CS LIST AND REVISED DATES
3	03/16/99	FOC 2-0762 ADDED SHEET 47A TO INDEX
2	8/19/99	FINAL SUBMITTAL COMMENTS

UTAH DEPARTMENT OF TRANSPORTATION — SVERDRUP/DE LEUW — TRAC NO. 2322400

ORIGINAL ACCEPT.	DOUGLAS KIRKPATRICK, PROJECT DESIGN ENGINEER	DATE 8/99	DESIGN JAC 8/99
APPROVED	PAUL BLACKHAM, PROJECT MANAGER	DATE 8/99	DRAWN MSS 8/99
			QUANT.
			CHECK CDF 8/99
			CHECK DAK 9/99
			CHECK

I-15 CORRIDOR RECONSTRUCTION
SR 201 WB OVER UPRR & 600W
SITUATION & LAYOUT 1

PROJECT NUMBER *SP-15-7(113)296

SALT LAKE COUNTY

DWG. NO. C-841

SHT. 1 OF 64

X. Standard Drawings Index

STANDARD DRAWINGS INDEX (Change 1, Dated 03/14/05)

UTAH DEPARTMENT OF TRANSPORTATION

U	NUMBER	TITLE	CURRENT DATE
		Advanced Traffic Management System (AT)	
	AT 1	Legend Sheet	**02/24/05**
	AT 2	Ramp Meter Details	**02/24/05**
	AT 3	Ramp Meter Sign Panel	**02/24/05**
	AT 4	Typical Ramp Meter Signal Head Mounting	01/01/05
	AT 5	Ramp Meter Loop Installation	**02/24/05**
	AT 6	Conduit Details	**02/24/05**
	AT 7	Polymer-Concrete Junction Box Details	**02/24/05**
	AT 8	ATMS Cabinet	**02/24/05**
	AT 9	ATMS Cabinet Disconnect And Transformer Frame	**02/24/05**
	AT 10	CCTV Mounting Details	**02/24/05**
	AT 11	CCTV Pole Details	**02/24/05**
	AT 12	CCTV Pole Foundation For Dedicated CCTV Pole	**02/24/05**
	AT 13	Not Used	
	AT 14	Weigh In Motion Piezo Details	**02/24/05**
	AT 15	RWIS Site And Foundation Details	**02/24/05**
	AT 16	RWIS Tower Base And Service Pad Layout	**02/24/05**
	AT 17	Ground Rod Installation And Tower Grounding	**02/24/05**
	AT 18	TMS Detection Zone Layout	**02/24/05**
		Barriers (BA)	
	BA 1A	Precast Concrete Full Barrier Standard Section	01/01/05
	BA 1B	Precast Concrete Full Barrier Standard Section	01/01/05
	BA 1C	Precast Concrete Barrier Terminal For Speed ≤ 40 MPH	01/01/05
	BA 1D	Precast Concrete Full Section Median Installation	01/01/05
	BA 1E	Precast Concrete Full Section Shoulder Applications	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	BA 2	Precast Concrete Half Barrier Standard Section	01/01/05
	BA 3A	Cast In Place Constant Slope Barrier	**02/24/05**
	BA 3B	Precast Concrete Constant Slope Transition Section For Crash Cushion And W-Beam Guardrail	**02/24/05**
	BA 4A	W-Beam Guardrail Hardware	01/01/05
	BA 4B	W-Beam Guardrail Transition	**02/24/05**
	BA 4C	W-Beam Guardrail Transition Curb Section	**02/24/05**
	BA 4D	W-Beam Guardrail Anchor Type I	01/01/05
	BA 4E	W-Beam Guardrail Installations	01/01/05
	BA 4F	W-Beam Guardrail Typicals Divided Roadways	01/01/05
	BA 4G	W-Beam Guardrail Typical Multilane Arterial	01/01/05
	BA 4H	W-Beam Guardrail Typical 2 Lane 2 Way	01/01/05
	BA 4I	W-Beam Guardrail Buried In Backslope Terminal	01/01/05
	BA 4J	W-Beam Guardrail Buried In Backslope Terminal With Rub Rail	01/01/05
	BA 4K	W-Beam Guardrail Buried In Backslope Terminal Anchor	01/01/05
	BA 4L	W-Beam Guardrail Curve Details	01/01/05
	BA 4M	W-Beam Guardrail Nested Guardrail 12’ 6” Span	01/01/05
	BA 4N	W-Beam Guardrail Nested Guardrail 18’ 9” Span	01/01/05
	BA 4O	W-Beam Guardrail Nested Guardrail 25’ Span	01/01/05
	BA 4P	W-Beam Guardrail With Precast Barrier For Span > 25’	01/01/05
		Catch Basins And Cleanouts (CB)	
	CB 1	Curb and Gutter Inlet	01/01/05
	CB 2	Open Curb Inlet	01/01/05
	CB 3	Shallow Catch Basin	01/01/05
	CB 4	Open Curb Shallow Catch Basin	01/01/05
	CB 5A	Standard Catch Basin and Cleanout Box	01/01/05
	CB 5B	Standard Catch Basin and Cleanout Box Section	01/01/05
	CB 6A	Drop Inlet Type “A”	01/01/05
	CB 6B	Berm Apron With Drop Inlet Type “A”	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	CB 7A	Drop Inlet Type “B”	01/01/05
	CB 7B	Normal Apron With Drop Inlet Type “B”	01/01/05
	CB 8A	Double Catch Basin	01/01/05
	CB 8B	Double Catch Basin	01/01/05
	CB 9A	Standard Catch Basin And Cleanout Box Situation And Layout	01/01/05
	CB 9B	Standard Catch Basin And Cleanout Box Section Details	01/01/05
	CB 9C	Standard Catch Basin And Cleanout Box Schedule Of Installation 18” to 42” RCP 12” to 48” CMP	01/01/05
	CB 9D	Standard Catch Basin And Cleanout Box Schedule Of Installation 48” to 66” RCP 60” to 78” CMP	01/01/05
	CB 10A	Standard Catch Basin And Cleanout Box Situation And Layout	01/01/05
	CB 10B	Standard Catch Basin And Cleanout Box Section Details	01/01/05
	CB 10C	Standard Catch Basin And Cleanout Box Schedule Of Installation 42” to 60” RCP 48” to 72” CMP	01/01/05
	CB 11	Standard Manhole	01/01/05
		Crash Cushions (CC)	
	CC 1	Crash Cushion Markings	01/01/05
	CC 2	Crash Cushion Drainage Details Guideline A	01/01/05
	CC 3	Crash Cushion Drainage Details Guideline B	01/01/05
	CC 4	Details For Placement Crash Cushions Type A, B, And D	01/01/05
	CC 5	Grading And Placement Details Crash Cushion Type C	01/01/05
	CC 6	Crash Cushion Type E Sand Barrel Details	01/01/05
	CC 7A	Grading And Installation Details Crash Cushion Type F Quad Trend 350	**02/24/05**
	CC 7B	Reserved For Future Use	
	CC 8A	Grading And Installation Details Crash Cushion Type G	**02/24/05**
	CC 8B	Grading And Installation Details For “3R” Projects Crash Cushion Type G	**02/24/05**
	CC 9A	Grading And Installation Details Crash Cushion Type H	**02/24/05**
	CC 9B	Grading And Installation Details Crash Cushion Type H (Parabolic Flare)	**02/24/05**

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
		Diversion Boxes (DB)	
	DB 1A	Standard Diversion Box/Cover Plate/Grating For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1B	Standard Diversion Box Hinged Lid Details For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1C	Standard Diversion Box Bicycle - Safe Grating Details For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1D	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1E	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1F	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 2A	Standard Diversion Box w/Interchangeable Walls, Bottom Slab, Walls And Apron Details	01/01/05
	DB 2B	Standard Diversion Box w/Interchangeable Walls, Quantities Schedule	01/01/05
	DB 2C	Standard Diversion Box w/Interchangeable Walls, Hand Slide Gate Details	01/01/05
	DB 2D	Standard Diversion Box Type "G" Hand Slide Gate Details	01/01/05
	DB 2E	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type "A" Details Type I Plan	01/01/05
	DB 2F	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type "A" Details Type II Plan	01/01/05
	DB 2G	Standard Diversion Box Hinged Lid Solid Cover Type "B" Details	01/01/05
	DB 2H	Standard Diversion Box Hinged Lid Solid Cover Type "B" And "C" Details	01/01/05
	DB 3A	Standard Diversion Box With Manhole Cover Situation And Layout	01/01/05
	DB 3B	Standard Diversion Box With Manhole Cover Up To 42" RCP And Up To 54" CMP	01/01/05
	DB 3C	Standard Diversion Box With Manhole Cover 48" to 72" RCP And 60" to 84" CMP	01/01/05
	DB 4	Standard Transition Concrete Lined Ditch To Pipe Or Diversion Box	01/01/05
		Design Drawings (DD)	
	DD 1	Superelevation And Widening	01/01/05
	DD 2	Surface Ditch, Benched Slope, And Cut Ditch Details	01/01/05
	DD 3	Climbing Lanes	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	DD 4	Geometric Design for Freeways (Roadway)	**02/24/05**
	DD 5	Entrance And Exit Ramps At Crossroads	01/01/05
	DD 6	Entrance And Exit Ramp Geometrics	01/01/05
	DD 7	Freeway Crossover	01/01/05
	DD 8	Structural Geometric Design Standards For Clearances	01/01/05
	DD 9	Structural Geometric Design Standards	01/01/05
	DD 10	Railroad Clearances At Highway Overpass Structures	01/01/05
	DD 11	Rural Multi Lane Highways Other Than Freeways	01/01/05
	DD 12	Rural Two Lane Highways	01/01/05
	DD 13	Frontage And Access Roads (Under 50 ADT)	01/01/05
	DD 14	Typical Rural 2 Lane Road With Median Lane And Deceleration Lane For Intersecting Crossroads	01/01/05
		Drainage (DG)	
	DG 1	Fill Height for Metal Pipe (Steel)	01/01/05
	DG 2	Fill Height for Metal Pipe (Aluminum)	01/01/05
	DG 3	Maximum Fill Height For HDPE And PVC Pipes	01/01/05
	DG 4	Pipe Minimum Cover	01/01/05
	DG 5	Plastic Pipe, Metal Pipe Or Pipe Arch Culvert Bedding	01/01/05
	DG 6	Precast Concrete Pipe Culvert	01/01/05
	DG 7	Gasketted Joints Or Coupling Bands For CMP	01/01/05
	DG 8	Metal Culvert End Section	01/01/05
	DG 9	Miscellaneous Pipe Details	01/01/05
		Environmental Controls (EN)	
	EN 1	Temporary Erosion Control (Check Dams)	01/01/05
	EN 2	Temporary Erosion Control (Silt Fence)	01/01/05
	EN 3	Temporary Erosion Control (Slope Drain And Temporary Berm)	01/01/05
	EN 4	Temporary Erosion Control (Drop Inlet Barriers)	01/01/05
	EN 5	Temporary Erosion Control (Sediment Trap And Curb Inlet Barrier)	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
		Fence And Gates (FG)	
	FG 1A	Right Of Way Fence And Gates (Wood Post)	01/01/05
	FG 1B	Right Of Way Fence And Gates (Wood Post)	01/01/05
	FG 2A	Right Of Way Fence And Gates (Metal Post)	01/01/05
	FG 2B	Right Of Way Fence And Gates (Metal Post)	01/01/05
	FG 3	Swing Gates Type I For Gates Less Than 17’	**02/24/05**
	FG 4	Deer Gates	01/01/05
	FG 5	Swing Gates Type II For Gates Wider Than 17’	01/01/05
	FG 6	Chain Link Fence	01/01/05
		Grates, Frames, And Trash Racks (GF)	
	GF 1	Manhole Frame And Grated Cover	01/01/05
	GF 2	Manhole Frame And Solid Cover	01/01/05
	GF 3	Rectangular Grate And Frame	01/01/05
	GF 4	Directional Flow Grate And Frame	01/01/05
	GF 5	Solid Cover And Frame	01/01/05
	GF 6	Manhole Steps	01/01/05
	GF 7	Standard Screw Gate And Frame	01/01/05
	GF 8	2’ x 2’ Grate And Frame	01/01/05
	GF 9	28” x 24” Directional Flow Grate And Frame	01/01/05
	GF 10	Standard Trash Racks 90 ° X-ing Angle	01/01/05
	GF 11	Standard Trash Racks	01/01/05
	GF 12	Standard Trash Racks	01/01/05
	GF 13	Open Curb Inlet Grate and Frame	01/01/05
	GF 14	Solid Cover For Std Dwg DB 1 MS-18 Loading	01/01/05
	GF 15	Standard Screw Gate And Frame	01/01/05
		General Road Work (GW)	
	GW 1	Raised Median And Plowable End Section	01/01/05
	GW 2	Concrete Curb And Gutter	01/01/05
	GW 3	Concrete Curb And Gutter Details	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	GW 4	Concrete Driveways And Sidewalks	01/01/05
	GW 5A	Pedestrian Access	01/01/05
	GW 5B	Pedestrian Access	01/01/05
	GW 5C	Pedestrian Access	01/01/05
	GW 6	Right Of Way Marker	01/01/05
	GW 7	Newspaper And Mailbox Stop Layout	01/01/05
	GW 8	Newspaper And Mailbox Support Hardware	01/01/05
	GW 9	Delineation Hardware	01/01/05
	GW 10	Delineation Application	01/01/05
	GW 11	Sidewalks And Shoulders On Urban Roadways	01/01/05
		Paving (PV)	
	PV 1	Joints For Highways With Concrete Traffic Lanes And Shoulders	01/01/05
	PV 2	Pavement/Approach Slab Details	01/01/05
	PV 3	Concrete Pavement Details For Urban And Interstate	01/01/05
	PV 4	Concrete Pavement Details For Urban And Interstate	01/01/05
	PV 5	Urban Concrete Pavement Details	01/01/05
	PV 6	Rumble Strips	01/01/05
	PV 7	Rumble Strips - Typical Application	01/01/05
	PV 8	Note Used	
	PV 9	Dowel Bar Retrofit	01/01/05
		Signals (SL)	
	SL 1A	Traffic Signal Mast Arm Pole And Luminaire Extension	01/01/05
	SL 1B	Traffic Signal Mast Arm Pole And Luminaire Extension	01/01/05
	SL 2	Traffic Signal Mast Arm Details 30’ Thru 75’	01/01/05
	SL 3	Underground Service Pedestal Details	01/01/05
	SL 4	Traffic Signal Mast Arm Pole Foundation	01/01/05
	SL 5	Traffic Signal Pole	01/01/05
	SL 6	Pole Mounted Power Source Details	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	SL 7	Span Wire Signal Pole Details	01/01/05
	SL 8	Signal Head Details	01/01/05
	SL 9	Pedestrian Signal Assembly	01/01/05
	SL 10	Traffic Signal Controller Base Details	01/01/05
	SL 11	Traffic Signal Loop Detector Details	01/01/05
	SL 12	Traffic Counting Loop Detector Details	01/01/05
	SL 13	Not Used	
	SL 14	Highway Luminaire Pole Ground Mount	01/01/05
	SL 15	Luminaire Slip Base Details	01/01/05
	SL 16	Highway Luminaire Pole Barrier Mount	01/01/05
	SL 17	Highway Luminaire Pole Foundation Extension	01/01/05
	SL 18	Single Transformer Substation Details	01/01/05
		Signs (SN)	
	SN 1	Bridge Load Limits Signs	01/01/05
	SN 2	School Speed Limit Assembly	01/01/05
	SN 3	Overhead School Speed Limit Assembly	01/01/05
	SN 4	Flashing Stop Sign	01/01/05
	SN 5	Typical Installation For Milepost Signs	01/01/05
	SN 6	Speed Reduction Sign Sequence	01/01/05
	SN 7	Placement of Ground Mounted Signs	01/01/05
	SN 8	Ground Mounted Timber Sign Post (P1)	01/01/05
	SN 9	Ground Mounted Tubular Steel Sign Post (P2)	01/01/05
	SN 10	Ground Mounted Square Steel Sign Post (P3)	01/01/05
	SN 11	Slipbase Ground Mounted Tubular Steel Sign Post (P4)	01/01/05
	SN 12A	Ground Mounted Sign Installation Details	01/01/05
	SN 12B	Ground Mounted Sign Installation Details	01/01/05
	SN 12C	Ground Mounted Sign Installation Details	01/01/05
		Striping (ST)	
	ST 1	Object Markers “T” Intersection And Pavement Transition Guidance	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	ST 2	Freeway Crossover Markings	01/01/05
U	ST 3	Typical Pavement Markings	01/01/05
	ST 4	Crosswalks, Parking And Intersection Approaches	01/01/05
	ST 5	Painted Median And Auxiliary Lane Details	**02/24/05**
	ST 6	Passing/Climbing Lanes Traffic Control	01/01/05
	ST 7	Pavement Markings And Signs At Railroad Crossing	01/01/05
	ST 8	Plowable Pavement Markers	01/01/05
	ST 9	School Crossing And School Message	01/01/05
		Structures And Walls (SW)	
	SW 1A	Welded End Guard Unit	01/01/05
	SW 1B	Precast Concrete Cattle Guard	01/01/05
	SW 2	Noise Wall Placement Area	01/01/05
	SW 3A	Precast Concrete Noise Wall 1 Of 2	01/01/05
	SW 3B	Precast Concrete Noise Wall 2 Of 2	01/01/05
	SW 4A	Precast Concrete Retaining/Noise Wall 1 Of 2	01/01/05
	SW 4B	Precast Concrete Retaining/Noise Wall 2 Of 2	01/01/05
		Traffic Control (TC)	
U	TC 1A	Construction Zone Channelization Devices	01/01/05
U	TC 1B	Construction Zone Signing	01/01/05
U	TC 2A	Traffic Control General	01/01/05
U	TC 2B	Traffic Control General	01/01/05
U	TC 3	Traffic Control Project Limit Signing	01/01/05
	TC 4	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
	TC 5	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
	TC 6	Traffic Control Pedestrian Routing	01/01/05
U	TC 7	Traffic Control Road Closed, Detour	01/01/05
U	TC 8	Traffic Control Lane Closure	01/01/05
U	TC 9	Traffic Control Multilane Closure	01/01/05

State Projects With 8 ½ x 11 Plan Sheets

U	NUMBER	TITLE	CURRENT DATE
	TC 10	Traffic Control Expressway And Freeway Crossover/Turn Around	01/01/05
U	TC 11	Traffic Control Exit Ramp Gore	01/01/05
U	TC 12	Traffic Control Entrance Ramp Gore	01/01/05
	TC 13	Traffic Control Shoulder-Haul Road	01/01/05
	TC 14	Traffic Control Flagging Operation	01/01/05
	TC 15	Traffic Control 2 Lane/2 Way Seal Coat With Cover Material	01/01/05
U	TC 16	Traffic Control Pavement Marking	01/01/05

XI. Equal Opportunity (State Projects)

Selection of Subcontractors, Service Providers, Procurement of Materials and Leasing of Equipment:

Do not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

Notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, have equal opportunity to compete for and perform subcontracts that the contractor enters into pursuant to this contract. Use best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Obtain lists of DBE construction firms from SHA personnel.

Use best efforts to ensure subcontractor compliance with their EEO obligations.

Selection of Labor:

During the performance of this contract, do not discriminate against labor from any other State, possession, or territory of the United States.

Employment Practices:

During the performance of this contract, the Contractor agrees as follows:

Do not discriminate against any employee or applicant for employment because of race, religion, sex, color, national origin, age, or disability. Take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, national origin, age, or disability. Such action includes, but is not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Department of Transportation setting forth the provisions of this nondiscrimination clause.

In all solicitations or advertisements for employees state that all qualified applicants receive consideration for employment without regard to race, religion, sex, color, national origin, age, or disability.

Send to each labor union or representative of workers that the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided by the State Department of Transportation advising the said labor union or worker' representative of the commitments under this section and post copies of the notice in conspicuous places available to employees and applicants for employment.

In the event of noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further State contracts.

Include the provisions of this Section in every subcontract or purchase order so that such provision will be binding upon each Subcontractor or vendor. Take such action with respect to any subcontract or purchase order as the State Department of Transportation may direct as a means of enforcing such provisions including sanctions for noncompliance.

XII. Special Provisions and Supplemental Specifications

March 3, 2005

SPECIAL PROVISION
SP-9999(751)

SECTION 00555M

PROSECUTION AND PROGRESS

PART 1 GENERAL

Add the following to Paragraph 1.9 Limitation of Operations:

D. I-15; Wasatch Corridor

1. Lane closures and work are restricted to weekends between Friday at 10:00 pm and Monday at 6:00 am. A full closure is not allowed for structures with more than one lane. The Contractor will be charged $2,000 per 5 minute increment that traffic control remains in place after 6:00 am Monday mornings.
2. Lane closures must be coordinated with the SR-201 Design-Build project (Contact Lonnie Marchant at 435-336-5335) and the I-15 re-striping project (Contact Dan Betts at 910-2430).
3. The Contractor shall inform the traveling public of upcoming work 4 days prior to the start of construction with Variable Message Signs. The messages will be determined by the Engineer.
4. No work or lane restrictions will be allowed on Holidays or Holiday weekends and any special events as determined by the Engineer.
5. The contract time is 60 Calendar Days. Time charges will begin on June 3, 2005. There are a total of 9 weekends during the Contract Time. However the contractor cannot work the holiday weekends of July 4, 2005 and July 24, 2005. Therefore, 7 weekends are available and the Contractor will earn $10,000.00 for each weekend not worked of the 7 available weekends, up to a maximum of $20,000.00. The Contractor will be charged a disincentive of $5,000.00 for each weekend worked over 5 weekends, in lieu of Standards Liquidated Damages. Any work performed by the Contractor during a weekend period will count as a full weekend. The maximum incentive for the project is $20,000.00.

END OF SECTION

January 18, 2005

SPECIAL PROVISION

SP-9999(751)

SECTION 00820M

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Delete Article 1.16 and replace with the following:

1.16 INSURANCE REQUIREMENTS

A. Workers' Compensation Insurance
   1. Provide Workers' Compensation Insurance to cover full liability. As a minimum, comply with the statutory limits defined by the State of Utah.

B. General Liability Insurance
   1. Provide General Liability insurance with the following minimum limits of liability:
      a. $1,000,000 Bodily Injury and Property Damage – Each Accident
      b. $2,000,000 General Aggregate
      c. $2,000,000 Products and Complete Operations Annual Aggregate

C. Excess General Liability Insurance
   1. Provide Excess Liability Insurance with the following minimum limits:
      a. $5,000,000 Each Claim
      b. $5,000,000 Aggregate

D. Automobile Liability Insurance
   1. Provide Automobile Liability Insurance for claims arising from the ownership, maintenance, or use of motor vehicles involved in project work with the following minimum limits:
      a. $1,000,000 Combined single Limit Bodily Injury and Property Damage per Occurrence

E. Provide the following for all required liability insurance policies:
   1. Where and when applicable, name as insured, only in respect to work to be performed under this Contract, the State of Utah and all institutions, agencies, departments, authorities, and instrumentalities, and while acting within the scope of their duties, all volunteers as well as members of governing bodies, boards, commissions, and advisory committees.
   2. Coverage for the above insured is primary and not contributing.
   3. Incorporate into the insurance policy this statement: "Insurance coverage is extended to include claims reported up to one year beyond the date of substantial completion of this Contract."

F. Provide UDOT with certificates of insurance showing coverage as required above at the time the contract is executed and maintain the policy in force during the entire period of the Contract. The certificates will also state that the policies required are endorsed to give UDOT (the Engineer) not less than 30 days prior notice in the event of cancellation or change in coverage.

G. Regardless of the Contractor insurance requirements required in this section, insolvency, bankruptcy, or failure of any insurance company to pay all claims accrued does not relieve Contractor of any obligations.

H. Endorse all policies to include waivers of subrogation in favor of UDOT.

March 15, 2004

SPECIAL PROVISION

SP-9999(751)

SECTION 01557S

MAINTENANCE OF TRAFFIC (MOT)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. MOT Maintainer

B. Maintenance of Traffic (MOT) plans, Materials, and labor necessary for implementation.

C. Variable message signs and construction signs

1.2 RELATED SECTIONS

A. Section 00555: Prosecution and Progress

B. Section 01554: Traffic Control

C. Section 02891: Traffic Signs

1.3 REFERENCES

A. Manual on Uniform Traffic Control Devices, Latest Edition (MUTCD).

B. American Traffic Safety Services Association (ATSSA)

1.4 DEFINITIONS

A. Maintenance of Traffic (MOT) is defined as the work necessary to advise the public of changes to normal traffic flow, and to indicate planned detours and alternate routes to closed roads. Use solely as advisory information to the public.

1.5 POST-BID REQUIREMENTS

A. Develop an MOT plan for approval by the DEPARTMENT. Submit plans in 11 x 17 format, prepared using CAD software. All plans must be signed and sealed by a professional engineer licensed in the State of Utah.

B. Attend a mandatory meeting as detailed in Section 01554, paragraph 1.4, line A.2.

C. Attendees of the mandatory meeting will review the Contractor's submitted traffic control plans and MOT plans for compatibility. Modify plans where necessary, as set forth in Section 01554, paragraph 1.6: Traffic Control Plan Requirements.

D. Do not begin work on the project until written approval of the MOT plan is received from the Engineer. No item of work can begin until the approved MOT plan is implemented for that phase of work.

E. The DEPARTMENT will not grant any additional contract time for preparing a modification to the MOT plan, if necessary.

1.6 MOT MAINTAINER

A. The Traffic Control Maintainer, as specified in Section 01554 is responsible for maintenance of MOT on the project. The Department makes no separate payment for maintenance of MOT.

B. Inspect MOT devices daily for compliance with the MOT plans. Submit daily inspection reports on a form acceptable to the Engineer.

1.7 MAINTENANCE OF MOT DEVICES

A. Maintain traffic control devices per Section 01554.

1.8 WAGE RATES FOR TRAFFIC CONTROL PERSONNEL (FEDERAL AID JOBS ONLY)

A. Refer to Section 01554 for wage rate information.

1.9 PAYMENT PROCEDURES

A. Partial Payments - Based on the percentage of the project completed, excluding the cost of MOT.
   1. Failure to comply with any of the requirements of this special provision will result in non-compliance.

B. Price Adjustments:
   1. The Department reduces payment if the MOT implemented is not in compliance with the approved MOT plan, as determined by the Engineer.
   2. The amount per day by which the Contractor's compensation will be reduced is calculated using the greater of the following:
      a. The daily charge in the Schedule of Liquidated Damages found in Section 00555M or
      b. The Contract lump sum bid price for MOT divided by the number of Contract days.

C. Payment for change in scope: Negotiate a price adjustment for MOT if the Engineer orders a change in the scope of work that requires modification to the approved MOT Plan.

PART 2 PRODUCTS

2.1 SIGNS

A. Refer to Section 02891.

B. Use type and configuration as directed by the MOT plans.

2.2 VARIABLE MESSAGE SIGNS (VMS)

A. Advance warning device
   1. Conform to guidelines set forth in Section 6F-2 of the MUTCD.
   2. Messages can be changed on-site and by dial-up modem

PART 3 EXECUTION

3.1 MODIFICATION OF MOT PLANS

A. Engineer may modify the MOT plans at any time.

B. Implement changes to the MOT plan before the end of the work shift.

C. Each phase of construction must be covered by an approved MOT plan. If a construction phase is proposed that is not covered by a Department supplied MOT plan, submit a proposed MOT plan to the Engineer for approval.
   1. Submit proposed MOT plan to the Engineer 10 working days before the proposed MOT plan is to be implemented.
   2. Do not begin work until the proposed MOT plan is approved for use, and has been fully implemented.

3.2 TRAFFIC CONTROL DEVICES

A. Installation and Maintenance:
   1. Install appropriate devices for each construction phase as identified in the appropriate MOT plan.
   2. Maintain devices to provide proper, continuous functionality.
   3. Wash devices weekly unless conditions warrant more frequent cleaning.
   4. Replace any device missing any part of the message or background.

B. Channelizing Devices: Use as directed by the MOT plan.
   1. Furnish a daily record of the number and location of all traffic control devices in use.
   2. Remove devices from the site of work when they are not needed for the immediate control of traffic.

3.3 VARIABLE MESSAGE SIGN (VMS)

A. The Department retains control of messages appearing on the VMS. Do not change the location or the message configuration of the VMS unless directed to by the Engineer in writing.

B. Place in view of oncoming traffic without obstructing traffic flow. Relocate VMS to match field conditions at no additional cost to Department.

C. Provide dial-up modem number to the Engineer.

D. Use necessary traffic control devices with VMS to provide safe operation.

E. Remove devices from the site of work when they are not needed for the immediate control of traffic.

F. Unless directed by the Engineer, display advance notification VMS messages for a minimum of 7 days prior to any traffic impacts such as start of work, change in traffic directions, etc. at each end of the project.

G. Make eight VMS signs available at all times during the project to be used as directed by the Engineer at no additional cost to the Department.

3.4 COORDINATION OF SIGNAL OPERATIONS

A. Notify the Engineer seven days prior to implementing a MOT plan (detour plans and alternate route plans) or any traffic control plan that impacts signal operations to allow the Engineer to coordinate any necessary signal timing adjustments with the TOC (Traffic Operations Center).

B. Changes to traffic signal operations will be done by the Department.

END OF SECTION

March 15, 2004

SPECIAL PROVISION

SP-9999(751)

SECTION 02765S

PAVEMENT MARKING PAINT

Delete Section 02765 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish Acrylic Water Based pavement marking paint meeting Federal Specification TTP-1952 D and refer to 2.2 for resin requirement.

B. Apply to hot mix asphalt or Portland cement as edge lines, center lines, broken lines, guidelines, contrast lines, symbols and other related markings.

C. Remove pavement markings.

1.2 REFERENCES

A. AASHTO M 247: Glass Beads Used in Traffic Paint

B. ASTM D 562: Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using the Stormer-Type Viscometer

C. ASTM D 2205: Selection of Tests for Traffic Paints

D. ASTM D 2743: Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography

E. ASTM D 2805: Hiding Power of Paints by Reflectometry

F. ASTM D 3723: Pigment Content of Water-Emulsion Paints

G. ASTM D 3960: Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings

H. ASTM D 4451: Pigment Content of Paints

I. ASTM D 5381: X-Ray Fluorescence (XRF) Spectroscopy of Pigments and Extenders

J. ASTM E 1347: Standard Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry

K. Federal Standards

1.3 ACCEPTANCE

A. Provide fixtures (ball valves, gate valves or other) on paint truck for the purposes of obtaining field samples.

B. Agitate the paint to allow for thorough mixing. Follow paint manufacturer's recommendation for agitation and mixing times.

C. Stop all agitation before sample is drawn.

D. All meters on the paint truck must be calibrated annually and certified for application rate verification. Calibration tolerances for meters must be +/- 0.5 pounds per gallon. Keep a clean, legible copy of calibration report with the paint truck. Certifications performed by company personnel, meter calibration companies or UDOT Equipment Certification Unit.

E. UDOT ENGINEER:

1. Visually inspects each line to verify bead adhesion and compliance with specified line dimensions requirements.
2. Verifies that the paint and beads are being applied within specified tolerances a minimum of once each production day.
3. Verifies quantities used by either method:
    a. Measuring both paint and bead tanks prior to and after application.
    b. Witnessing the meter readings prior to and after application.
4. Randomly sample each color of pavement marking paint used, minimum of one sample each per project.
    a. Use a clean one-pint metal paint can.
    b. Sample paint immediately after the paint has been completely agitated. (Stop all agitation before drawing the sample)
    c. Allow a minimum of 10 gallons to be applied prior to taking sample.
    d. Fill the sample container to within ½ inch of full.
    e. Seal the containers immediately by tightly attaching the container’s lid.
    f. Submit paint samples to Central Chemistry Lab for acceptance.

g. For each sample include:

- Project Number
- Project Name
- Paint Manufacturer
- Batch Number
- Striping Company
- Color of Paint
- Est. Quantity
- Date Sampled
- Sampler's name

F. Repaint any line or symbol failing to meet bead adherence and dimensional requirements.

G. Price Reductions for Pavement Markings installed below the specified wet mil thickness are outlined in Table I.

Table I - Price Reduction for Wet Mil Thickness	
	Pay Factor
At the specified mil thickness	1.00
1-10 percent below the Specified wet mil thickness	0.75
11-15 percent below the Specified wet mil thickness	0.50
More than15 percent below the Specified wet mil thickness	Repaint Pavement Markings

H. Price reductions for pavement markings that fail to meet the requirements of Table III are outlined in Table II. When more than one of the requirements of Table III are deficient. The result with the highest price reduction governs.

Table II - Price Reductions	
	Pay Factor
At the specified requirements	1.00
Up to1 percent deficient	0.90
Up to 2 percent deficient	0.80
Up to 3 percent deficient	0.70
Up to 4 percent deficient	0.60
Up to 5 percent deficient	0.50
More than 5 percent below specified quantitative requirements	Repaint Pavement Markings

PART 2 PRODUCTS

2.1 Manufacturers

A. Select an acrylic water based pavement marking paint manufacturer, from the Accepted Products Listing (APL) maintained by the UDOT Research Division.

2.2 Paint

A. Follow Federal Standards 595B, 37875, 33538, and 11105. Meet the following requirements for Acrylic Water Based Paint as listed in Table III:

Table III - Paint Requirements

Property	White	Yellow (lead free)	Black	Test
Pigment: Percent by weight	62.0	62.0	62.0	ASTM D 3723
Total Solids: Percent by weight, minimum	77.0	77.0	77.0	ASTM D 2205
Nonvolatile vehicle: Percent by weight vehicle, minimum*	40.0	40.0	40.0	ASTM D 2205
Viscosity, KU @ 77 degrees F	80 – 95	80 - 95	80 - 95	ASTM D 562
Volatile Organic Content (VOC): lbs/gal, maximum	1.25	1.25	1.25	ASTM D 3960
Titanium Dioxide Content, lbs/gal	1.0 min	0.2 max	N/A	ASTM D 5381
Directional Reflectance : Minimum	92.0	50.0	N/A	ASTM E 1347
Dry Opacity: Minimum (5 mils wet)	0.95	0.95	N/A	ASTM D 2805

* The binder shall be 100 percent acrylic, a minimum of 40 percent, by weight, as determined by infrared analysis and other chemical analysis available to UDOT (ASTM D 2205). Consisting of either Rohm and Haas Fastrack HD- 21A or Dow DT-400NA.

B. Additional requirements:
   1. Free of lead, chromium, or other related heavy metals ASTM D 5381.
   2. ASTM D 2743, ASTM D 4451 and ASTM D 5381: Tests used to verify paint samples meet Accepted Products Listing.

2.3 GLASS SPHERE (BEADS) USED IN PAVEMENT MARKING PAINT

A. Specific Properties: Meet AASHTO M 247 with the following exceptions.
   1. Gradation:

Passing a No. 14 sieve, percent	95 - 100
Passing a No. 16 sieve, percent	80 - 95
Passing a No. 18 sieve, percent	10 - 40
Passing a No. 20 sieve, percent	0 - 5
Passing a No. 25 sieve, percent	0 - 2

   2. Beads having a Silane adhesion coating.
   3. Roundness - The glass beads will have a minimum of 80 percent true spheres.

B. Beads used in Temporary Pavement Markings meet AASHTO M 247 Type II uniform gradation.

PART 3 EXECUTION

3.1 PREPARATION

A. Line Control.
   1. Establish control points at 100 ft intervals on tangent and at 50 ft intervals on curves.
   2. Maintain the line within 2 inches of the established control points and mark the roadway between control points as needed.
      a. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the Department. Refer to article 3.4.
      b. Maintain the line dimension within 10 percent of the width and length dimensions defined in Standard Drawings.

B. Remove dirt, loose aggregate and other foreign material and follow manufacturer’s recommendations for surface preparation.

3.2 APPLICATION

A. Apply Pavement marking paint at the following Wet mil thickness requirements.
1. 20 – 25 wet mils for all markings.

Example Calculation: (Verify wet mil thickness)

$$\text{Wet Mils} = \frac{(0.133681\ ft^3/gal)}{(X\ ft/gal)(Z\ ft)} * 12000\ mil/ft$$

Where,
X = application rate. (Meter readings or dipping tanks).
Z = line width measured in feet.
12000 = conversion from ft to mil
0.133681 = conversion from gallons to cubic feet.

For information only: Approximate application rate for required mil thickness requirements.
1. 4 inch Solid Line: From 190 to 240 ft/gal
2. 4 inch Broken Line: From 760 to 960 ft/gal
3. 8 inch Solid Line: From 95 to 120 ft/gal

B. Refer to Table I for pavement markings that are less than 20 wet mils in thickness.

C. No additional payment for pavement markings placed in excess of 25 wet mils in thickness or exceeding dimensional requirements outlined in Article 3.1 paragraph A.

D. Painted Legends and Symbols 1 gallon per 80 square feet. Provide Engineer calculations of legends and symbols for pay determination.

E. Glass Sphere (Beads): Apply a minimum of 8 lbs/gal of paint, the full length and width of line and pavement markings.
1. Do not apply glass beads to contrast lines (black paint).

F. Begin striping operations no later than 24 hours after ordered by the Engineer.

G. At time of application apply lines and pavement markings only when the air and pavement temperature are:
1. 50 degrees F and rising for Acrylic Water Based Paint.

H. Comply with Traffic Control Drawings.

3.3 CONTRACTOR QUALITY CONTROL

A. Application Rate: Verify that the paint and beads are being applied within specified tolerances prior to striping.

B. Curing: Protect the markings until dry or cured. In the event that the uncured marking is damaged the marking will be reapplied and track marks left on the pavement will be removed at no additional cost to the Department.

3.4 REMOVE PAVEMENT MARKINGS

A. Use one of these removal methods:
   1. Grinding
   2. High pressure water spray
   3. Sand blasting
   4. Shot blasting.

B. Do not eliminate or obscure existing striping, in lieu of removal, by covering with black paint or any other covering material.

C. Use equipment specifically designed for removal of pavement marking material.

END OF SECTION

March 22, 2004

SPECIAL PROVISION

SP-9999(751)

SECTION 03371S

THIN BONDED POLYMER OVERLAYS FOR BRIDGE DECKS AND APPROACH SLABS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for applying a protective crack treatment and bridge deck overlay using either an epoxy-urethane polymer (**Type 1**), or a Modified Epoxy polymer (**Type 2**) with a broadcast aggregate wearing surface.

1.2 REFERENCES

A. ASTM D-638: Tensile Stress and Load Bearing Capacity

B. ASTM C-566: Aggregate Testing

C. Mohs Scale Hardness Test

D. Sieve Analysis: Aggregate Gradation

E. ASTM C-109: Compressive Strength of Hydraulic Cement Mortars

F. ASTM C0778: Sampling

G. ASTM D-570: Water Absorption of Plastics

H. ASTM D-2240: Rubber Property – Durometer Hardness

I. ASTM C-501: Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader

J. ACI – 503R: Adhesion to Concrete, Pull Out Test

K. California Test Method 419: Flexural Creep

L. ASTM D-790: Flexural Yield Strength

M. ASTM D-971: Surface Tension

N. NCHRP 244: Chloride Penetration Test Method

O. ASTM 4065-95: Dynamic Mechanical Analysis

1.3 SUBMITTALS

A. Submit the intended name of the manufacturer of the Polymer Overlay materials at the Pre-Construction Meeting.

B. Submit to the ENGINEER for approval (at least 10 days prior to placement) a Certificate of Compliance from an independent nationally recognized laboratory stating that the polymer overlay materials meet the requirements listed in Tables 1, 2, 3, 4, 5 and other material requirements contained in this specification.

C. Submit a name and phone number of the Manufacturer's Technical Support Representative at the Preconstruction Meeting.

PART 2 PRODUCTS

2.1 POLYMER OVERLAY MATERIALS

A. Install an **Thin Bonded Polymer bridge deck overlay system using either an Epoxy-Urethane (Type 1) co-polymer, or modified Epoxy (Type 2) polymer as specified on the plan or detail sheets**, which includes all materials, surface preparation, application of a pretreatment for crack filling and bonding, and two (2) coats of a polymer resin broadcast with a high wear, high skid aggregate that chemically cures to provide an impervious wearing surface.

Type 1 – Epoxy-Urethane Co-Polymer: Provide Polymer resins consisting of a blend of epoxy and urethane materials that meet the physical requirements outlined in other parts of this specification. The polymer overlay is to be free of any fillers, volatile solvents and the use of external/conventional flexiblizers is not permitted. The use of metered mixing equipment, as outlined in other parts of this specification is required with the use of this material. In general, the use of a Type 1 polymer (with equipment) is intended for high wear conditions, and rapid construction schedules, and is acceptable for use on all bridge deck environments.

Type 2 – Modified Epoxy Polymer: Provide Polymer resins consisting of modified epoxy materials that meet the physical requirements outlined in other parts of this specification. The use of additives, fillers, volatile solvents, and flexiblizers to modify the physical properties of the epoxy to meet physical requirements are acceptable. The use of metered mixing equipment, as outlined in other parts of this specification is **NOT** required with the use of this material, but is highly recommended. In general, the use of a Type 2 polymer should be limited to low wear conditions, and moderate construction schedules. For projects specifying a Type 2 (Modified Epoxy) polymer, a Type 1 (epoxy-urethane) polymer may be substituted for the Type 2 polymer.

2.2 STEEL SHOT BLAST

A. Clean concrete surfaces using a Steel Shot Blast in accordance with the recommendations of the polymer overlay manufacturer.

2.3 PRETREATMENT AND CRACK FILLER

A. After cleaning the concrete surface, apply a two (2) component pretreatment to the bridge deck to fill minor cracks and increase the bond strength between the overlay and the deck surface. Pretreatment to comply with the physical properties of TABLE 1:

TABLE 1
PHYSICAL PROPERTIES OF THE PRETREATMENT SYSTEM

Property	Value
Compressive Strength, min. psi	5,500 – 6,000
Tensile Strength, min. psi	3,100 – 3,400
Tensile Elongation, percent min.	35 $\pm$5
Water Absorption, percent by wt. Max.	<0.10
Shore D Hardness, 77°F min.	70 $\pm$5
Gel Time, minutes	48-52 (7 oz.)
Adhesion to Concrete	100% failure in concrete
Surface tension	Less than 0.0012 pounds/in^3
Percent Solids	100

2.4 POLYMER OVERLAY SYSTEM

A. After applying the pretreatment, apply two (2) layers of a two-part polymer resin and saturate it with a broadcast aggregate before it cures. They polymer is to be formulated to volumetric mixing proportions (such as 1 part A to 1 part B), according to the manufacturer's recommendations. The cured polymer system is to comply with the physical requirements of TABLE 2.

TABLE 2
PHYSICAL PROPERTIES OF THE POLYMER OVERLAY SYSTEM

Property	Value
Compressive Strength, min. psi	7,000
Tensile Strength, min. psi	2,500
Tensile Elongation, percent min.	35 $\pm$5
Water Absorption, percent by wt. Max.	0.20
Shore D Hardness, 77°F min.	65 $\pm$5
Gel Time, minutes	22-31
Abrasion Resistance, oz., max.	0.003
Adhesion to Concrete	100% failure in concrete
Flexural Creep: Total Movement in 7 days	.0065 inches minium
Flexural Yield Strength, min. psi	5,000
Percent Solids	100

B. The modulus of the cured polymer system is to comply with the requirements of TABLE 3, using a variable temperature Dynamic Mechanical Analysis (DMA) at a frequency of 1 HZ with a 0.3% strain using ASTM D-4065-95.

C. The cured epoxy-urethane system is to conform to a load bearing capacity of retaining 85% of its original load bearing strength at (tensile strength) as 20% strain using ASTM method D-638.

TABLE 3
VISCO-ELASTIC PROPERTIES OF THE POLYMER OVERLAY SYSTEM

TEMPERATURE	STORAGE MODULUS pounds/in^2	LOSS MODULUS Pounds/in^2
14°F	$1.45X10^5$	$8.70X10^3$
68°F	$1.01X10^5$	$1.30X10^4$
122°F	$5.80X10^3$	$4.35X10^3$
140°F	$1.45X10^3$	$1.01X10^3$
158°F	$8.70X10^2$	$2.90X10^2$

2.5 AGGREGATE

A. An aggregate wearing surface is to be broadcast into the polymer system according to the manufacturer's specifications. The aggregate used is to be non-friable, non-polishing, clean and free of surface moisture. It should have a proven record of durability in this type of application. 100% of the aggregate is to have at least 1 mechanically fractured face for materials being retained on the #10 sieve. The aggregate is to be thoroughly washed, kiln dried to maximum moisture content of 0.2% by weight (ASTM C-566). The recommended aggregate is Washington Stone. Alternate aggregates may be allowed upon approval by the manufacturer and ENGINEER.

B. The aggregate is to meet the physical properties of TABLE 4 and TABLE 5:

TABLE 4
AGGREGATE PROPERTIES

GLACIAL GRAVEL	BASALT QUARTZITE GRANITE (% by Weight)
$Si0_2$	75.03
Al_2O_3	11.49
Fe_2O_3	3.57
CaO	2.84
MgO	1.59
SO_3	0.08
Na_2O	2.58
K_2O	0.99
Combined Alkali	3.20
Ignition Loss	1.72
Mohs Scale Hardness	6.50
ASTM 566 (water absorption)	0.2%

TABLE 5
AGGREGATE GRADATION

Sieve Size	Percent Passing
0.187 in; No.6	100
0.078 in; No.10	10 – 35
0.033 in; No.20	0 – 10

PART 3 EXECUTION

3.1 SURFACE PREPARATION

A. Pot-Hole Patching: Repair any minor potholes of the surface area of the deck prior to installation of the polymer system using cementious patching materials that meet other specifications. The use of polymer patching materials will be allowed for potholes less than 2 inches in depth, and in accordance with the recommendations of the manufacturer and the ENGINEER. Any costs associated with the surface defects and pothole repairs less than 1 inch in depth are to be included in with the Bid Item for the Polymer Overlay System.

B. Shot-Blasting: The entire deck is to be cleaned by steel shot-blasting to remove any oil, dirt, rubber or other materials that, in the opinion of the manufacturer or ENGINEER, may be detrimental to the bonding and curing of the polymer overlay.

C. Curbs: In areas that cannot be reached with the steel shot-blasting, such as curbs, sandblasting equipment or mechanical grinders are permitted with the approval of the manufacturer or ENGINEER.

D. Traffic: Traffic is not to be allowed on any portion of the deck, which has been shot-blasted. The overlay equipment will be allowed on cleaned surfaces under the supervision of the Manufacturer and Engineer.

E. Weather: All surfaces to be treated are to be dry at the time of application. The polymer overlay system is not to be applied when it has rained within 24 hours, or is expected to rain within 8 hours. Moisture content in the concrete substrate is not be exceed 4.5% when measured by an electronic meter. The minimum recommended temperature is 50°F and increasing. The polymer overlays are not to be applied before April 15th, or after September 30th.

3.2 APPLICATION

A. Sound Surface: The application of the pretreatment and Polymer Overlay Systems are to be on a structurally sound concrete surface and in accordance with the manufacturer's specifications.

B. Metered Mixing Equipment: For Type 1 Polymers, the use of special equipment is required that is capable of metering, mixing and distributing the polymer. The machinery must be owned and operated, or approved by the polymer manufacturer. The application machine shall feature positive displacement volumetric metering pumps controlled by a hydraulic power unit. Components shall be stored in temperature controlled reservoirs capable of maintaining 100° $\pm$10°F to insure optimum mixing. Ratio check verification at the pump outlets as well as cycle counting capabilities to monitor output will be standard features. In line mixing shall be motionless so as to not overly shear the material or entrap air in the mix. The machine shall maximize working time of the material by mixing it immediately prior to dispensing.

C. Layer Thickness: The number of layers and the application rates of the liquid in the various layers shall be as recommended by the manufacturer in order to achieve a minimum overlay thickness of 0.375 in.

D. First Layer:

1. Application of the Liquid: After manually or mechanically measuring and mixing of the components, the liquid shall be evenly distributed on the clean, dry deck surface at the rate as recommended by the manufacturer. After the entire deck surface is wet, allow 1-2 hours for the liquid to achieve full depth penetration into cracks as well as adequately encapsulate the steel grid, if any. After the liquid is allowed to penetrate, medium size coarse silica sand may be broadcast evenly if the subsequent application is going to be applied after 8-12 hours.

E. Second Layer: Prior to the application, if there exists any excess or loose aggregate from the previous coat, such excess aggregate shall be completely removed by vacuum or with compressed air. After mixing of the components via the mechanical application equipment, the liquid shall be evenly distributed on the clean, dry deck surface at the rate as recommended by the manufacturer.

F. Time Limits For Aggregate: After the application of the liquid in the first and second coats, the maximum time allowed before broadcasting of the aggregate is as follows:

Above 90°F	10 minutes
80°F to 90°F	15 minutes
70°F to 80°F	20 minutes
60°F to 70°F	25 minutes
50°F to 60°F	35 minutes

G. Broadcasting Aggregate: Broadcasting on decks shall be by truck-mounted equipment capable of dispensing the aggregate onto the deck in a uniform manner as directed or otherwise approved by the manufacturer. The aggregate shall be broadcast such that to cover the surface so that no wet spots appear and before the polymer begins to gel. The aggregate must be dropped vertically in such a manner that the level of the liquid is not disturbed. In the first and second layers of the liquid, aggregate conforming to TABLES 4 and 5 of this specification shall be broadcast to saturate until no wet spots remain.

H. Removal Of Excess Aggregate: After the overlay has hardened, removal of all loose and excess aggregate with a power vacuum or other method shall be made prior to the application of subsequent coats.

I. Longitudinal Joints In The Overlay: (i.e., between two adjacent lanes) shall be staggered and overlapped between successive coats so that no ridges will appear.

J. Traffic: Traffic may be allowed on the final layer, on in between layers after the resin has cured (as determined by the manufacturer) and after removal of all excess, loose aggregate.

K. Storage And Handling, Liquid Material: All material shall be transported and stored in their original containers inside a dry, temperature controlled facility and maintained at a minimum temperature of 60°F to 90°F.

L. Job Site Storage: The materials shall be stored on the job site in a dry, weather protected facility away from moisture and within the temperature range of 60°F to 90°F. When the materials are transported or stored on the job, in the application machine tanks, the material must also be maintained at a temperature of 60°F to 90°F.

M. Handling Of Liquid Materials On The Job: Protective gloves, clothing, boots and goggles shall be provided to workers and inspectors directly exposed to the material. Product safety data sheets shall be provided to all workers and inspectors as obtained from the manufacturer.

N. Aggregat**e**: All aggregate shall be stored in a dry, moisture-free atmosphere. The aggregate shall be full protected from any contaminants on the job site and shall be stored so as not be exposed to rain or other moisture sources.

3.3 QUALITY CONTROL

A. Technical Support Representative: The manufacturer shall have a representative on the job site at all times who, upon consultation with the ENGINEER, may suspend any item of work that is suspect and does not meet the requirements of this specification. Resumption of work will occur only after the manufacturer's representative and the ENGINEER are satisfied that appropriate remedial action has been taken by the CONTRACTOR.

B. Warranty: The polymer manufacturer and the CONTRACTOR shall jointly guarantee the wearing surface against all defects incurred during normal traffic for a **period of three (3) years**, for any delamination or reduced skid (less than 50). The guarantee period shall commence on the date of acceptance of work (typically the date traffic is allowed on surface),

C. Samples: The manufacturer shall furnish at least one-quart sample of each component from each lot to the DOT laboratory to verify material supplied.

D. Prior Performance: The selected material must have a satisfactory performance in Utah for at least 2-years from the time of placement. Products without 2 years of satisfactory prior performance will be considered as experimental, should not be used for bidding purposes, and will only be considered for use with the approval of the ENGINEER, after the award of the contract.

E. Packing Requirement: All materials must be packed in strong, substantial containers. The containers shall be identified as Part A and Part B and shall be plainly marked with the name and address of the manufacturer, name of the product, mixing proportions and instructions, lot and batch numbers, date of manufacture and quantity contained therein.

F. Material Quality Control And Testing Methods: The materials used shall meet the properties specified in the tables and other sections of this specification, and shall also meet the following correspondence tests for quality control:

1. Compressive Strength: ASTM C-109, *Compressive Strength of Hydraulic Cement Mortars.* The two components of the resin are to be thoroughly mixed in their appropriate ratios. Two volumes of graded silica sand in accordance with ASTM C-778 shall be added to one volume of mixed resin. The samples shall then be prepared according to the requirements of ASTM C-109 and allowed to cure for 7 days at 73° $\pm$4°F.

2. Tensile Strength and Elongation: ASTM D-638, *Tensile Properties of Plastics*, Specimen Type I or Type II. Samples shall be cured at 73° $\pm$4°F and 50 $\pm$5% relative humidity. Speed of testing shall be 0.5 in./min.

3. Water Absorption: ASTM D-570, *Water Absorption of Plastics*. Sample specimens shall be prepared according to Section 4.1 and allowed to cure at 73° $\pm$4°F and 50 $\pm$5% relative humidity. Tests are then to be carried out as per Section 6.1.

4. Shore D Hardness: ASTM D-2240, *Rubber Property – Durometer Hardness*. Specimen shall be prepared as per ASTM D-570 Section 4.1 and allowed to cure at 73 $\pm$4°F.

5. Gel Time: The following procedure shall be used to determine gel time: Measure 4 oz. of Part A and 2 oz. of Part B each at 77°F, into an unwaxed paper cup and record the time and mix immediately. 3.5 oz. of this mixture shall be poured into a 6 oz. unwaxed paper cup and placed on a wooden bench top. Starting twenty (20) minutes from the time recorded above, the mixture shall be probed every two (2) minutes with a small stick until a small ball forms in the center of the container. The total time, including mixing, required for the ball to form shall be regarded as the gel

time. The test shall be performed in a room or enclosed area maintained at 77° ±4°F and 50 ±5% relative humidity.

6. Abrasion Resistance: ASTM C-501, *Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader*. Tests shall be done using a CS-17 wheel and a 2.2 pound load for 1,000 cycles.

7. Adhesion to Concrete: ACI-503-R, Pull Out Test.

8. Flexural Creep: California Test Method 419.

9. Flexural Yield Strength: ASTM D-790.

10. Surface Tension: ASTM D-971.

END OF SECTION